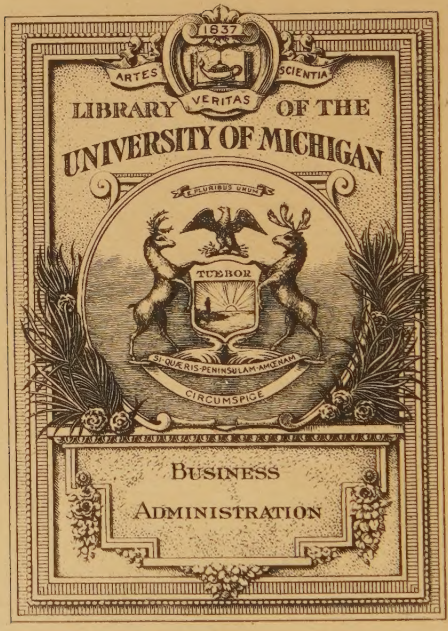
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THE PUBLIC'S INVESTMENT IN HOSPITALS

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THE PUBLIC'S INVESTMENT IN HOSPITALS

By
C. RUFUS ROREM

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FOREWORD

The hospital of the present day is an institution which unites emotional, scientific, and financial interests. To the family of the sick patient, the hospital is a battlefield between life and death, the focus of intense anxieties and hopes. To the physician, the hospital is an institution for the practice of medicine and a central agency through which the study of disease is pursued, the boundaries of medical knowledge widened, and medical skill increased. From the standpoint of the business man and of the taxpayer, the hospital represents a financial enterprise which, as this study of Dr. Rorem's demonstrates, overtops in magnitude many nation-wide industries.

The hospital is essentially an extension of the physician. It is an organization for the institutional practice of medicine—for bed patients in the rooms and wards, for ambulatory patients in the clinics. It represents the organization of professional and mechanical equipment and varied forms of professional and technical skill for the care and prevention of illness, the study of the nature and problems of disease, and the training of personnel to deal with them.

From this medical point of view, the professional standards of the hospital are of primary importance. The economic structure and relationships of the institution are only the foundation for its essential product, professional service. The doctor's part in the hospital is thus the primary element in its function. Investigations into the economics of hospital organization and maintenance are preliminary rather than final, although at many points the economics of hospital service are integrally related to its professional aspects. The welfare of the patient's body and of his pocketbook are closely connected. From the standpoint of the physician, the care of patients in the hospital is an important source of income, particularly to surgeons; and the relations of

hospitals and clinics to private medical practice in patients' homes and physicians' offices is a major interest in present medical economics. From the standpoint of the hospital trustee and administrator, as well as that of the physician, the constitution and organization of the hospital medical staff is a subject still in the area of experimentation and needs much more study than it has received. From the standpoint of a city, town, county, state, or industry, the scope and quality of the medical service rendered by hospitals will be greatly influenced by the extent and sources of its financial support.

The present study, dealing, as it does, with the economic aspect only, is thus insufficient for a complete answer to many important questions affecting hospitals and clinics, because both the medical and the economic aspects must be considered together (even if studied separately) before solutions of many problems can be obtained.

Dr. Rorem's investigation is one of several studies in the hospital and clinic field made possible for the writer of this foreword through a generous grant from the Rockefeller Foundation. The subject of capital investment in hospitals and clinics was selected as one of the topics for inclusion in this series both because of the comparative neglect of the subject and because of its evident importance. Hospital superintendents as individuals, and organizations like the American Hospital Association and its committees, have given much attention to current hospital expenditures and to administrative economics. Professional bodies like the American Medical Association and the American College of Surgeons have studied and endeavored to deal practically with professional organizations and standards. But hardly any attention has been paid to the effect of investing several billion dollars in the buildings and equipment of hospitals in the United States and to the influence of this vast investment upon the control, policies, standards of service, and financing of hospitals. Many of the problems, and not a few of the disputes such as have occasionally arisen between medical societies and hospitals or between hospitals and community chests, have, as this

study indicates, been due to ignorance of the facts and implications of capital investment.

In a paper on "The Economic Basis of Medical Charges," presented by the present writer before the American Association for the Advancement of Science in 1927, the need of studying this subject was indicated as follows:

> Outstanding subjects demanding study include the amount and kinds of capital investment in private practice, in hospitals and clinics; the observed relations between the sources and ownership of the capital and the policies and types of service; the business aspects of private and of institutional practice, and of supplementary services such as nursing or the laboratory. Careful study of such economic data, co-ordinated, of course, with material from the medical field, is necessary to the solution of the problem of medical service, either from the point of view of physicians who are involved in the complexities and uncertainties of the modern business of doctoring, or from the standpoint of patients who are oppressed by the financial weight and unevenness of the sickness burden.

The Committee on the Costs of Medical Care included this subject in its five-year program of studies. After Dr. Rorem had completed the field work and most of the compilation of the data, he became (about January 1, 1930) a member of the staff of the Committee and, among other duties for the Committee since that date, has devoted a portion of his time to the completion of this volume.

The 7,000 hospitals of the United States represent a capital investment of nearly as many billion dollars as the public schools of the country. The annual capital investment in new hospitals or in extensions and improvements of existing institutions places the hospital construction business among three or four major divisions of the building trades.

Recent hospital investment is intensive rather than extensive—the betterment of existing institutions rather than their enlargement or the establishment of new ones. Endowment for the support of charitable service in hospitals is a minor factor in the maintenance of hospital service in the United States. Dif-

ferent geographical sections of the country vary remarkably in the amount of capital investment in proportion to population, and there are marked differences also between hospitals designed for different types of service and between those under government auspices and those under private control.

There is an increasing capital investment per hospital bed; and this growing investment is often inadequately utilized, since in many hospitals less than two-thirds of the beds are occupied on the average day of the year. Heavier fixed charges, waste of valuable space and equipment, economic loss to both hospital and community, are the results of this inadequate utilization of the invested capital.

Probably the most striking fact brought out by the study is that, even in this most business-like of countries, nearly all of the vast sum of over $3,000,000,000 has been provided for the hospitals of the United States without expectation of a business return. Although to a large extent American hospitals are conducted as businesses in the sense that they aim to collect from their patients sufficient money to carry all or a major part of their running expenses, the entire capital charge, with the exception of a small fraction, has been furnished on a non-profit basis by governments or by the voluntary gifts of individuals and organizations. Provision of the capital means control of the hospitals which this capital has established and equipped. The investment in hospitals is substantially a public investment. As the author puts it, "The public owns the hospitals."

From a broad point of view, that a sum of $3,000,000,000 has been invested by the public in hospitals without expectation of a business return, and that the people are increasing this investment by some $200,000,000 a year, often more, means that the hospital system in the United States is substantially for public purposes and in the long-run under social control. Administrative authorities, whether governmental officials or boards of trustees, are essentially fiduciaries for the public. The fact that about 9 per cent of the hospital beds in the country are provided under business auspices (proprietary hospitals) only serves to set

out by contrast the essentially public function of the typical hospital in America.

Failure to appreciate this situation causes confusion, and not infrequently conflict. As the text points out, the average capital investment per bed in a general hospital creates a fixed-capital charge, which, if assessed against the patient, would mean adding a dollar or more a day to his hospital bill. Ordinarily, however, in the United States these fixed charges are not borne by the patient, even by well-to-do patients, but are carried by the taxpayers or by the comparatively small number of persons who give funds to building and equipment of hospitals.

Who should pay these increasingly heavy fixed charges of hospital service? Dr. Rorem's analysis goes far to answer at least the question "Who does pay them?" How do these fixed charges affect the daily management of a hospital? The third section of this book presents some useful suggestions on this point. Perhaps in the long run, the ultimate source of confusion or conflict is the struggle for the control of this vast social capital now invested in our hospital system. Understanding the facts, as the report helps us to do, is at least the first step toward bringing harmony out of dissension.

The question is now sometimes discussed, whether the physicians of the country should not own and control the hospitals which are of increasing importance to their practice. Facts in the case show that the question "Should the doctors own the hospitals?" is beside the point. The direct question is, "Can they?" Ownership of the hospitals of the United States would mean an average investment of about $22,000 for each of the 150,000 physicians, or more than $30,000 apiece for each of the approximately 100,000 physicians who appear to have access to hospital facilities at the present time. The capital needed *every year* for the extension and replacement of hospital facilities would mean an annual investment of at least $2,000 out of the individual income of each of the 100,000 physicians.

The ultimate control of hospital policies, of the location and types of hospitals to be established, the kinds of service which

they shall provide, and the rates or economic basis upon which these services shall be offered will, under these conditions, rest ultimately with the public, who use the service, pay for it, and, as the figures of capital investment show, own it.

These incontrovertible facts are in no wise inconsistent with the fundamental need of determination of the medical standards of the hospitals by medical men or of the control by physicians of the medical work as such. Here arises an illustration of the need of joint consideration of the medical and economic aspects of the situation, a subject requiring special study and with which this book necessarily cannot deal.

In these days of discussion of the "costs of medical care," Dr. Rorem's discussion of the capital investment as an element of cost should attract attention. Should the patient pay his share of capital cost if the capital has been provided the hospital as an outright gift, as has usually been the case? Chapter XVII of this book states admirably the paradox that, while capital costs are an unexpectedly large factor in the appraisal of total cost of hospital service to the community, they ought to be, and as a rule are, a negligible factor in the cost of hospital service to the patient. Adequate cost accounting, as the discussion shows, would reveal these facts and assist hospitals not only toward economy in expenditure but toward more effective methods of securing income. The adjustment of rates for various kinds of service rendered to different economic groups of patients can be effectively accomplished only after an adequate analysis of cost, including fixed charges, has been made, and after a study has been made of the relation between the total paying-ability of a patient and the burden which hospital service may bring upon his family budget.

Here again, medical and economic aspects of hospital service intermingle. Almost every one of the millions of private or semi-private patients in American hospitals finds, not one bill arising from hospital service, but at least two bills—one for the hospital charges and one for the services of the physician or surgeon. Lack of co-ordination of the hospital bill and the professional bill may leave either the hospital or the physician unable to collect

what is due because the paying-power of the patient has already been exhausted in meeting the other bill. Both these bills, moreover, are often the climax of a procession of bills occasioned by sickness which had preceded the stay in the hospital.

Assuming, as all successful retail business enterprises do, that the average customer is honest and intends to pay what he owes, the situation presented by the two uncorrelated bills arising from hospital service is anomalous. It forcibly illustrates the need for joint study by physicians and economists, and doubtless for co-ordinated action between the medical staffs and the administrators of hospitals.

The study of capital investment in hospitals raises certain questions which can only be answered when facts shall have been made available on another parallel subject, namely, capital investment in private medical practice. The time has long passed when a physician could carry all current medical knowledge under his hat or all professional equipment in his saddle bags. A large and increasing body of instruments, apparatus, and books are required for modern medical practice, particularly in some specialties. How large is capital investment in private practice? To what extent do the private offices of physicians in the same community, sometimes in the same office building, represent unnecessary and burdensome duplication of plant and equipment and of the personnel required to administer these? If in a city of 30,000 population, three physicians maintain X-ray apparatus with an average capital investment of $10,000 in addition to an X-ray department in the local hospital, how much of this investment is justified? Is it kept adequately utilized, or is it idle for a considerable proportion of working time? In the absence of facts regarding the capital investment in private practice, answers to such questions must be deferred. It is certain, however, that capital investment in both private practice and in hospitals and clinics is much larger than formerly, and that this increase in capital investment is accompanied by a much enlarged technical personnel required to maintain and operate the plants and equipment in which this capital is incorporated.

The effective utilization of larger capital and personnel is the economic reason for more organization in medical practice than was formerly required. This is illustrated, in a general way, by the elaborate organization of a typical modern hospital, or of a group clinic, such as the Mayo, as well as in smaller institutions of similar type, and indeed in many private offices of physicians having a large practice. For a satisfactory knowledge of the economics of medical service and for a better application of this knowledge for the benefit of the average patient and the average physician, the facts should be known in quantitative and not merely in general terms. The Committee on the Costs of Medical Care included in its five-year program a study of capital investment in private practice, and it is much to be hoped that this investigation can soon be made as a needed parallel to the present study.

We may be sure that, while increased capital investment in both institutional and private practice undoubtedly requires additional organization, medical service remains no less the product of the skill and personality of physicians. Capital investment in buildings, instruments, and apparatus, and the assistance of trained personnel, nurses, medical social workers, laboratory technicians, and others—all these are present-day essentials to many forms of medical service; but, after all, they are subsidiary to its primary form. An increase in the capital devoted to medical service and in the organization of this service needs also an enhancement in the personalities and the brains that are to make these facilities count for their ultimate ends in human health and welfare.

Michael M. Davis

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PART I
INTRODUCTION

CHAPTER I

THE IMPORTANCE OF CAPITAL INVESTMENT

At one time hospitals were havens of refuge for the relief and comfort of needy or ailing travelers. The welcome of those in charge of hospitals is illustrated in the word "hospitality," which holds a place in the vocabulary and thought of Western civilization. Hospitals were intended primarily for those who had no home in the community. Until late in the nineteenth century, homes were considered more suitable for medical treatment than hospitals, even for those who were seriously ill for long periods of time. Only those who could not afford home care, or those suffering from certain communicable diseases, expected hospitalization.

GROWTH OF HOSPITAL SERVICE

An actual count of the reported dates of founding the 6,852 "registered" hospitals in 1928 shows that but 661 of them were established during or earlier than the year 1875. By 1900 there had been established 2,070 of the hospitals registered in 1928. Since 1900 the rate of establishment for hospitals has been nearly 200 per year, even without making allowance for those founded and discontinued during the years 1901 to 1928. This rapid increase in numbers does not completely measure the increase in facilities, for hospitals, after they are established, tend to expand and to improve their available facilities from year to year. The economic significance of these facts will be discussed in chapter xi. They are mentioned here merely to emphasize the comparative recency of hospital service as a social phenomenon.

The hospital is now recognized as the appropriate place for the treatment of many types of diseases and conditions. Diagnostic and therapeutic equipment and facilities are readily available, the services of trained and intelligent nursing staffs

are provided, and the doctor's time is conserved by contiguity with several patients in the same building. The general shift from houses to apartments has reduced the space available for home care of the sick; the growing tendency for each member of a family group to contribute toward the family income has limited the personnel able to care for other members. All of these factors have contributed to the increased use of hospitals and the consequent construction and maintenance of a large number of them in all parts of the country.

The growth of hospitals is part of a general change in modes of living and in the practice of medicine throughout the world. The increase of medical knowledge has been accompanied and aided by two major tendencies—tendencies which are interdependent and which are at once cause and effect of the generally recognized improvements in medical care. These tendencies are (*a*) specialization of knowledge and skill on the part of students and practitioners in the medical field and (*b*) development of types of equipment which facilitate and co-ordinate specialized diagnosis and treatment. Both of these tendencies have necessitated careful organization of knowledge, skill, and equipment in order that the medical profession and the patients may reap the full benefits which should naturally accrue. The co-ordination of various fields of medical knowledge and skill, on the one hand, and the effective utilization of equipment, on the other hand, have led to the design and construction of places wherein relatively large numbers of patients can be housed and in which a considerable number of physicians and subsidiary personnel can work. The physician has thereby been enabled to save time in the treatment of patients, as well as to utilize specialized immobile equipment. The patient has also benefited by having the knowledge, skill, and equipment of a group of specialists concentrated upon the problem of his own medical care.

HOSPITALIZATION AS A BUSINESS

The hospital has become a place of business—the business of medical care. To be sure, it is not the only place where the

business of medical care is carried on. Yet it is the one which parallels most closely the conditions encountered in other types of business, such as education, merchandising, and manufacturing. The plant and equipment, the personnel, the receipts and disbursements, the problems of management, are often more intricate than those of large and important industrial enterprises. A single hospital may represent a capital investment of $10,000,000 and employ a permanent force of 1,500 professional, skilled, and unskilled workers. In a western agricultural city of 25,000 inhabitants one of the local hospitals with its personnel of 125 employees is the most important business establishment in the community, when measured in terms of its monthly payroll. Many instances could be cited, in metropolitan areas as well as in hamlets, where the hospitals are proudly pointed out as a symbol of the advanced medical practice in the community as well as of the importance which the citizens attach to the adequate care and prevention of illness. The business of hospitalization has expanded: now the 7,000 hospitals of the United States represent an investment of more than $3,000,000,000 in plant and equipment. This figure exceeds the capital investment devoted to manufacturing in many of the more important industries, as reported in 1919 to the Bureau of the Census. The only groups of industries having investments exceeding $3,000,000,000 in 1919 were the following: iron and steel and their products, $8,711,843,201; textiles and their products, $6,096,161,183; chemicals and allied products, $5,617,738,265; food and kindred products, $4,615,149,885. Among the groups of industries reporting less than $3,000,000,000 in 1919 were: lumber and its products, $2,580,045,776; paper and printing, $2,382,400,111. None of the foregoing amounts include enterprises with capital investments of less than $5,000.[1]

But hospitalization is not a business of the ordinary type. The hospital is not merely a hotel; nor is it merely a place from

[1] *Fourteenth Census of the United States, 1920,* VIII, 146–47. No capital investment data have been gathered by the Bureau of the Census since 1920, although it may be assumed there has been an increase during the past decade.

which to dispense medical care at a reasonable price. It is a focal point for the concentration and dissemination of knowledge concerning life itself. The commodity "health" cannot be forced on an unwilling buyer; it cannot be given to a recipient who fails to appreciate its value; it cannot be restored to one who has lost it, unless he co-operates in the search. The hospital is at once a hotel, an industrial plant, a repair and rehabilitation shop, a haven of refuge for those who are mentally or physically distressed, and an educational institution for the professions concerned. The co-ordination of these activities requires knowledge and skill as broad and as deep as does the task itself. It demands an understanding of the part the hospital plays in community life, of the business of preventing and caring for illness, of the technique of managing a large and varied personnel, and of dealing with a clientèle that is in large measure abnormal because of sickness in mind or body.

THE IMPORTANCE OF PLANT AND EQUIPMENT

The word "hospital" brings to the layman's mind a picture of steel and concrete, a large imposing structure, a building with rooms, beds, corridors, offices, kitchens, power plants, laboratory equipment, surgical apparatus, and instruments—in short, the physical plant and equipment. These facts impress the lay mind more than the professional training, the special skill and the knowledge of the staff, and the spirit of co-operation, which transform the hospital from an inanimate structure into a living organism. The capital investment in a hospital does not measure the extent or the adequacy of the medical care rendered therein; nevertheless, modern medical care is for the most part impossible unless the capital investment has been made. Capital investment of some kind is a prerequisite to any hospital care, good or bad. The institution therefore requires careful administration in order that funds may be applied to facilitate rather than hinder the care of present and prospective patients.

THE NEED FOR CAPITAL INVESTMENT DATA

Inauguration of the present study was considered important because of two aspects of capital investment in hospitals. In

the first place, the capital investment is very large. Hospital service involves a total investment in plant and equipment which rivals some of the most important types of private industries; and moreover, each individual hospital requires a total investment which makes it an important economic enterprise. In the second place, the economic rôle of capital investment in hospital service has been consistently neglected in the financing and administrative policies of many hospitals individually and in groups. The layman, unfamiliar with hospital management and financing policies, naturally assumes that accounting for capital investment is an important phase of the planning and operation of hospitals. He is surprised to learn that most hospitals in their reports give no explicit recognition to the capital investment in the institutions under their guidance, once the plant and equipment have been made available and put into use. This practice is particularly characteristic of governmental hospitals and those under the auspices of non-profit associations.

It is important that all groups concerned give careful consideration to the capital investment in hospitals, for the amount and utilization of this capital very definitely affects the scope and quality of the service supplied to the beneficiaries. The groups concerned with hospital capital investment may be said to be three in number: the general public; the hospital superintendents; and the physicians, nurses, and other personnel.

The general public comprises both the contributors of hospital capital and the recipients of hospital service. To the people at large, hospital care is only one of a group of services which must be co-ordinated for the public welfare. When funds are provided to build, equip, or endow a hospital, they represent resources which are withdrawn from the possibility of use in any other type of private or public service. A group of citizens who give money to a hospital cannot, with the same funds, also contribute to the expenses of a clinic, a travelers' aid society, or an orphanage. When a government votes bonds for the erection of a hospital, it thereby limits the amount of public resources available for highways, parks, buildings, or education. Hospitals require greater relative capital investment than most other insti-

tutions contributing to the public welfare. Moreover, the large sums invested in the land, buildings, and equipment of a modern hospital cannot ordinarily be recalled and used with economy in any other way, should the hospital venture prove to be unwise from a medical or social point of view.

To the hospital superintendent, capital investment assumes importance as one of the economic goods to be co-ordinated with labor and supplies in the production of hospital service. The plant and equipment provide a special type of service and involve important economic costs in the form of interest and depreciation. To be sure, these costs may be met under conditions which render it inadvisable to attempt to recover them from patients of the hospital. Nevertheless, recognition and measurement of such costs are necessary. Otherwise, it will be impossible to distribute the burden to any particular group in accordance with an accepted policy or to avoid assessing any group which should be freed from carrying this load. But regardless of who pays ultimately for the capital investment, it is important that it should serve the greatest possible number of beneficiaries through effective utilization of plant and equipment. The superintendent is, therefore, concerned with any policy which will accomplish this result.

Physicians and nurses represent the two main professional groups which make medical service in hospitals a reality. They require adequate facilities for the exercise of their professional knowledge and skill, and are limited or aided in their service by the amount and arrangement of the plant and equipment of a given hospital. Needless to say, economical utilization of plant and equipment may release funds for the remuneration of the important professional groups concerned with hospitals and other forms of medical care.

Capital investment underlies, and is prerequisite to, hospital care. Once a hospital is constructed, it can render a wide variety of public services otherwise unavailable for the care and prevention of illness. Capital investment and the costs related to it are not the only important economic phases of hospital care.

But they are phases which have been generally ignored in discussions of hospital financing policies and costs. A study of the economic problems of hospital service must be prefaced by an understanding of the amount and significance of capital investment. It is the purpose of the present study to provide the facts on which to base such an understanding.

CHAPTER II

THE HOSPITAL SITUATION IN THE UNITED STATES

What is a hospital? How many and what kinds of hospitals are there? What methods are used for the provision of hospital capital? The present chapter is intended to answer the foregoing questions, and thereby to provide a background for the discussion of hospital capital. The material is summarized at this point for those readers who are not familiar with the general facts concerning American hospitals.

"HOSPITALS" AND "BEDS" DEFINED

No attempt will be made to give a formal technical definition of a hospital, although it is generally recognized as a place where a person may receive appropriate domiciliary attention while suffering from a disease or condition requiring medical care. A hospital is to be distinguished from two other agencies, namely, the "clinic," which provides medical care for patients who are able to be up-and-about, and the "institution," such as orphanages or homes for aged and infirm, which provides housing but not medical care for its residents. For purposes of the present study the author has considered as hospitals (1) all those agencies admitted to the hospital "register" of the American Medical Association and (2) certain others which have been excluded from the register because of their failure to meet standards as to facilities or medical policy established by the Council on Medical Education and Hospitals. In 1928 there were 6,852 hospitals registered by the American Medical Association, and 458 hospitals excluded. It is upon the numerical data gathered concerning the registered hospitals that most of the present discussion of the hospitals in the United States will be based.[1]

[1] The present analysis of the 1928 data of the American Medical Association is based upon the work sheets of the statistical department of the Council on

The extent of a hospital's facilities is usually expressed in terms of "beds" available for the use of patients. Modern hospitals, of course, provide many facilities which are not directly concerned with bed care, such as diagnostic and therapeutic apparatus for ambulatory patients, dormitories and classrooms for student nurses, quarters for the accommodations of internes, etc. But the term "bed" has two very distinct advantages over any other possible unit, such as cubic feet, square feet, personnel, or number and type of medical and surgical apparatus. In the first place, the "bed" is a unit applicable to hospitals of all kinds and in all locations. In the second place, data concerning beds have been already gathered for individual and classified hospitals. In the present study the term "bed" is used only for those normally considered available for patients entering the hospital for medical care and requiring the occupancy of a hospital bed. The term does not include (for purposes of this study) beds for lay employees, relatives of patients, nurses, internes, attending physicians, bassinets for newborn infants, or lounges for the use of out-patients recovering from minor treatments. The total bed capacity of the 6,852 hospitals registered by the American Medical Association in 1928 was 892,934, not including 43,313 bassinets. In addition, the 458 hospitals which were not admitted to the register reported a total bed capacity of 12,754, including about 750 bassinets.

TYPES OF HOSPITALS

Hospitals may be classified according to the type of medical service for which they are primarily intended, or the type of control under which they are administered. The types of medical service for which hospitals are intended are here grouped into five categories: *general*, *nervous and mental*, *tuberculosis*, *special*, and *institutional*. General hospitals are intended to ac-

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Medical Education and Hospitals rather than on the published report in the Hospital Service numbers of the *Journal of the American Medical Association*. This procedure has resulted in a classification of individual hospitals and groups which occasionally differs from that of the annual report of the Council.

commodate all kinds of acute medical and surgical cases. Most hospitals are of this type. In the present classification the term "general" also applies to the hospitals listed by the American Medical Association as "emergency" and "industrial." Many hospitals are intended primarily for specialized care of patients, but the present classification recognizes for separate consideration only those intended for nervous and mental cases and for the treatment of tuberculosis. The "nervous and mental" hospitals include institutions for epileptic cases and for mentally deficient children.

The "special" hospitals (excluding those for nervous and mental and tuberculosis cases, which are classified separately) are those for treatment of particular diseases and conditions. This group comprises hospitals limited to special treatments or types of patients as follows: eye, ear, nose, and throat; orthopedic; skin and cancer; maternity; chronic; convalescent and rest; isolation; and children. "Institutional" hospitals are attached to such institutions as schools, orphanages, homes for aged and infirm, prisons or reformatories and are intended for general medical service restricted to the residents of the institutions.

The types of control under which hospitals are administered may be grouped into three categories, subdivided into eleven classes, as follows: *governmental*, including federal, state, county, city, and city and county; *non-profit associations*, including independent associations, churches, and fraternal orders; *proprietary*, including individuals or partnerships, corporations, and industrial enterprises. No further consideration need be given at this point to the classes shown above as governmental; their descriptive terms indicate clearly the auspices under which they are reported to be controlled. Brief mention may be made, however, of certain types falling within the other two groups.

The non-profit association hospitals include all those operated on such a basis that the gains or losses of the hospital do not accrue to the personal account of the investors who supply the capital or control the policies. This does not mean that the earnings of such hospitals are never sufficient to recover all expenditures; in fact, some of them are entirely self-supporting,

even according to the strictest standards of business finance. The largest number of hospitals in this group are controlled by independent hospital associations, incorporated for the sole purpose of organizing and operating a hospital as a charitable corporation. The term "charitable" does not imply that all patients are accepted as objects of charity, for most of these hospitals accept a substantial percentage of paying patients. Some of these associations are initiated according to racial or national distinctions, such as Jewish, Norwegian, French, or Italian. Others are representative of the entire community they are intended to serve. The American Medical Association classifies as "independent" all incorporated hospitals not under church or fraternal control. The present study limits this group to those organized on a non-profit basis.

Many of the church hospitals are under the control of religious nursing orders, such as the Catholic sisters and Protestant deaconesses. The hospitals organized and controlled by Protestant denominations are, however, usually not closely associated with the church, and in some instances receive but small financial support from this source. The fraternal hospitals are intended primarily for members of the order, or their families, although some fraternal societies have opened their hospitals to the general public.

The proprietary hospitals include all those organized on a business basis, where the financial benefits and responsibility accrue directly or indirectly to those who supply the capital and control the financial policies. These hospitals are established with a view to yielding a return to the investors, even though in certain cases they may fail to do so. Those owned by *individuals or partnerships* are classified as such by the American Medical Association. There are 580 *incorporated proprietary hospital associations*, according to the data secured by the author concerning the financial policies of these hospitals. As was mentioned above, the records of the American Medical Association classify these latter hospitals with the "independent associations." The basis for the separation is discussed further in chapter viii. *Industrial* hospitals are controlled and supported

by separate industrial enterprises and are intended primarily for the employees of the firm.

RELATIONS BETWEEN HOSPITAL CONTROL AND MEDICAL SERVICE

Certain quantitative relationships appear between various types of medical services and various types of hospital control, as may be observed from a study of Table I and Figures 1 and 2.

TABLE I

HOSPITALS AND HOSPITAL BEDS (EXCLUDING BASSINETS) REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION, 1928, CLASSIFIED BY CONTROL AND TYPE OF SERVICE*

CONTROL	GENERAL		NERVOUS AND MENTAL		TUBERCULOSIS		INSTITUTIONAL		SPECIAL		TOTALS	
	Hospital	Beds	Hospital	Beds	Hospital	Beds	Hospital	Beds	Hospital	Beds	Hospital	Beds
Federal	232	33,949	20	15,472	27	8,348	11	3,486	4	510	294	61,765
State	51	13,992	223	329,397	60	14,453	247	10,134	14	1,783	595	369,759
County	221	24,563	53	19,513	154	15,023	46	2,770	15	1,362	489	63,231
City	235	37,587	9	11,567	27	6,857	16	753	85	8,362	372	65,126
City and county	33	4,946	2	73	14	1,612	5	604	9	318	63	7,553
Total governments	772	115,037	307	376,022	282	46,293	325	17,747	127	12,335	1,813	567,434
Independent	1,014	94,700	49	6,978	73	6,559	103	3,067	222	16,755	1,461	128,059
Church	841	100,342	20	4,123	24	2,872	76	1,645	95	5,631	1,056	114,613
Fraternal	34	2,365	.....	.....	6	657	31	1,338	16	938	87	5,298
Total nonprofit associations	1,889	197,407	69	11,101	103	10,088	210	6,050	333	23,324	2,604	247,970
Individuals and partnerships	1,272	27,972	131	4,064	82	2,818	.....	.....	213	4,479	1,698	39,333
Incorporated proprietary†	448	23,150	46	2,550	40	2,800	.....	.....	46	2,650	580	31,150
Industrial	157	7,047	.....	.....	.....	.....	.....	.....	.....	.....	157	7,047
Total proprietary	1,877	58,169	177	6,614	122	5,618	.....	.....	259	7,129	2,435	77,530
Total registered hospitals	4,538	370,613	553	393,737	507	61,999	535	23,797	719	42,788	6,852	892,934

* "General" includes industrial, surgical, and emergency. "Nervous and mental" includes feeble-minded and epileptic. "Special" includes maternity; convalescent and rest; isolation; children's; eye, ear, nose, and throat; orthopedic; skin and cancer; drug and alcohol; chronic and incurables; trachoma; venereal, and others.

† See chapter viii for method of estimating the hospitals and bed capacities of the incorporated proprietary hospitals.

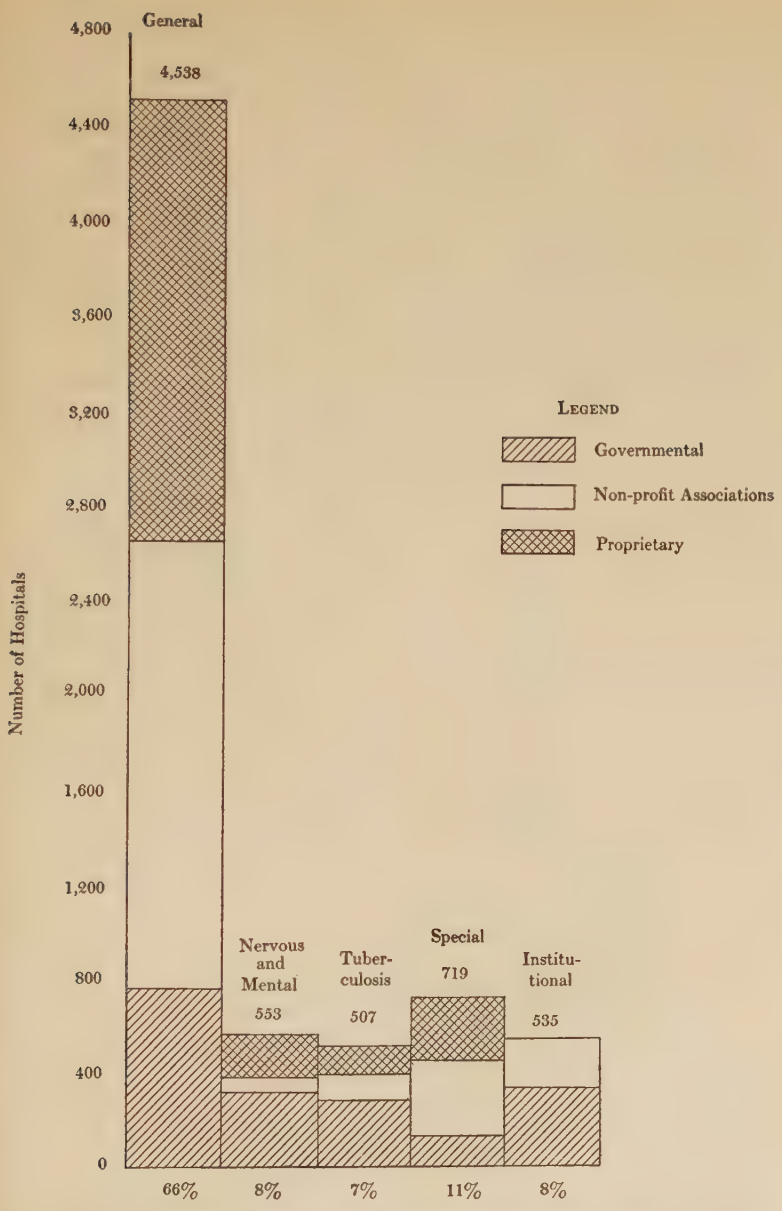

Fig. 1.—Hospitals in the United States compared as to type of medical service and subdivided by type of control (6,852 hospitals registered by the American Medical Association in 1928).

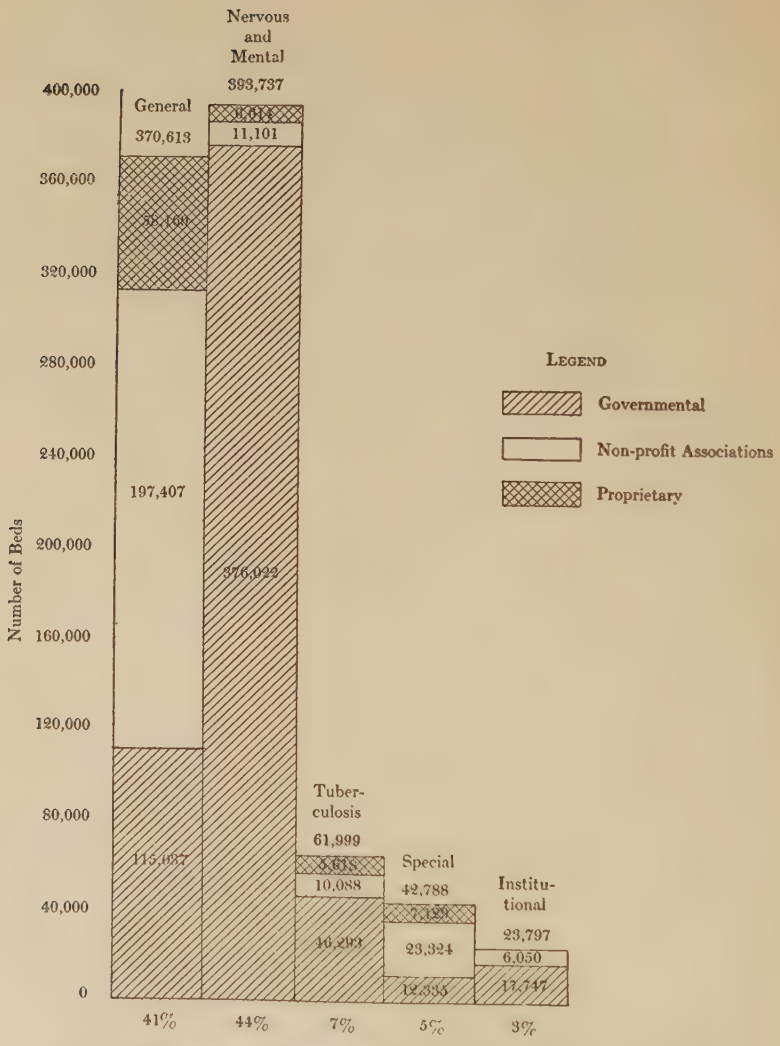

Fig. 2.—Bed capacities of hospitals in the United States compared as to type of medical service and subdivided by type of control (892,934 beds registered by the American Medical Association in 1928).

Most of the hospitals (4,538) are of the general type. The bed capacity of these hospitals, however, is slightly less than for the 553 nervous and mental hospitals. The beds in general and in nervous and mental hospitals combined comprise nearly 90 per cent of the total in the registered hospitals.

Approximately 60 per cent of all hospital beds are under governmental control, although less than one-third of the total number of hospitals are administered by governmental units. The explanation of the paradox lies, of course, in the larger average size of the government hospitals. Governments have provided about 95 per cent of the beds for nervous and mental cases, the greatest portion of this burden being carried by the several states. State mental hospitals are typically very large; the average capacity for the 223 such registered hospitals is nearly 1,500 beds, as contrasted with an average of 30 beds for those under individual and partnership control. In the case of tuberculosis patients, governments have also taken the lead, with approximately three-fourths of the total bed capacity. Both counties and states have been active in providing such care, these two agencies controlling about half the tuberculosis hospital beds in all hospitals.

Among general hospitals, the leadership is held by the non-government groups; more than half of the beds for general medical and surgical care are under the control of non-profit associations. These hospitals number almost 1,900, average more than 100 beds in capacity, and contain nearly 200,000 beds. There are a large number of relatively small general hospitals operated on a business basis. In the field of general hospital care, the various cities and counties play an important rôle, controlling nearly 500 hospitals and over 65,000 beds. Federal hospitals are not usually available for service to the general public but are limited to the care of present and former soldiers and sailors, special wards of the federal government, or groups served in the interest of the United States Public Health Service.

The institutional hospitals are not an important group in

terms of hospitals or beds. Most of them are under government auspices.

The special hospitals are a mixed group. The number of hospitals and beds of the various types under governmental and non-governmental control are indicated in Table II. It will be observed that more than two-thirds of the governmental special

TABLE II

SPECIAL HOSPITALS AND BEDS "REGISTERED" IN 1928, CLASSIFIED ACCORDING TO CONTROL AND TYPE OF MEDICAL SERVICE

TYPE OF SERVICE	TOTAL		CONTROL			
			Government		Non-government	
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
All types	719	42,788	127	12,335	592	30,453
Convalescent and rest	172	7,449	3	199	169	7,250
Maternity	164	5,912	3	198	161	5,714
Isolation	92	8,651	90	8,561	2	90
Eye, ear, nose, and throat	77	2,879	2	149	75	2,730
Children	64	5,465	4	350	60	5,115
Orthopedic	63	5,607	8	1,292	55	4,315
Incurables	37	3,598	4	449	33	3,149
Skin and cancer	16	1,018	4	345	12	673
Drug and alcoholic	8	184	.....	.....	8	184
Venereal	5	182	3	106	2	76
Trachoma	3	85	3	85	.....	.....
Leprosy	1	425	1	425	.....	.....
Others	17	1,333	2	176	15	1,157

hospitals and beds are for isolation cases. Among the non-government hospitals, the most important groups are the hospitals for maternity and convalescent cases. A relatively large number of special hospitals are also provided for children; for eye, ear, nose, and throat cases; and for orthopedic service.

The average bed capacities of the various groups of hospitals, calculated from the data shown in Table I, would give but slight indication as to the size of the typical American hospitals. They range widely in bed capacity, even within the groups and sub-

groups shown in Table I. Certain tables in Appendix B and the discussion in succeeding chapters will show that most hospitals are relatively small, approximately 70 per cent of them reporting bed capacities of 100 or less in 1928. On the other hand, the majority of the hospital beds are to be found in the large hospitals with more than 100 beds each.

CAPITAL FINANCING POLICIES

Before proceeding to a discussion of the hospital capital in the United States, and its relation to hospital finances and costs, brief mention may be made of the financing methods used by the various agencies concerned with the procurement and investment of hospital capital. Capital investment at the present time is provided in the following four ways: (1) governmental taxation, (2) voluntary contributions, (3) loans or issuance of stock, and (4) accumulation of surplus through net profits from hospital earnings. The last-mentioned method is usually made possible only by the fact that most hospitals are granted exemption from property taxes, although a few institutions actually receive sufficient fees from patients to achieve this result. No one method can be considered the sole source of capital for hospitals controlled by any class or group.

Government hospitals usually finance all expenditures through general or special funds raised by taxation. New buildings are generally erected through the issuance of bonds, the interest and principal being paid from annual taxes. State and federal hospitals also are generally financed from tax funds exclusively, whereas city or county institutions in some instances have been assisted by private philanthropy, particularly in the construction of plant and equipment.

Proprietary hospitals usually depend entirely upon business loans or investment and patients' fees for meeting capital and current expenditures. Very little free work is done by the proprietary hospitals, although they all must accept some emergency cases and absorb bad debt losses. Usually they receive

no allowance from governments, no private voluntary contributions, and are not exempt from taxation.

The non-profit hospitals generally avail themselves of a variety of financing methods. Patients' fees during a fiscal period are usually a substantial proportion of the current receipts ranging from none to approximately all of the total cash income. The balance is made up from contributions in various forms, such as grants from a state or local government, large gifts from wealthy citizens, many of whom are former patients or relatives of former patients, small amounts solicited directly from the public through campaigns or through participation in the collections of a community-chest "drive." Some of these hospitals also receive extensive donations of services, particularly from religious nursing orders, the members of which receive only small allowances and their maintenance expenses. The net effect of these contributions is to reduce the deficit from operations, and in some instances to accumulate surplus available for capital expansion. The original capital needs of non-profit associations are often met through large gifts of wealthy local citizens, although in many instances numerous small contributions are solicited. In the case of church or fraternal hospitals, the original capital may be borrowed from, or on the credit of, the denomination or society. At times the supporting organization also finds it necessary ultimately to pay the obligations thus assumed. In most states the property and net income of non-profit hospitals are exempt from taxation.

SUMMARY

Hospitalization of the acutely sick and injured has been taken care of primarily by the general public through specially organized hospital associations, or through existing non-profit institutions, such as churches and fraternal orders. Counties and cities have provided an appreciable number of hospital beds for general medical and surgical care. The federal government offers almost no hospital service for acute diseases and conditions among the general public. Proprietary hospitals provide

general hospital care in many small communities, although there are some in the cities. The facilities of proprietary hospitals do not represent a large percentage of the total available beds for acutely sick and injured in the country.

Governmental units have concerned themselves primarily with hospitalization of those cases requiring segregation from the public, such as mental and communicable diseases and tuberculosis, or have provided general care for persons continuously in the custody of the state. States have specialized upon the care of nervous and mental cases, and in fact have assumed primary responsibility for this type of care in the United States. The state nervous and mental hospitals contain approximately 80 per cent of all such hospital beds in the country. There is no marked concentration in the hospitalization of tuberculosis patients: local, state, and federal governmental units have each assumed substantial responsibility. The local governments have assumed the major responsibility for hospitalizing patients afflicted with communicable disease. Most of the special hospitals are under the control of private organizations.

PART II

AMOUNT AND DISTRIBUTION OF CAPITAL INVESTMENT IN HOSPITALS

CHAPTER III

THE AMOUNT OF CAPITAL INVESTMENT

The studies conducted during the preparation of this report lead to the conclusion that hospitals of the United States represented, as of December 31, 1928, a capital investment of approximately $3,125,000,000, as shown below. This amount does not include an estimated total of $437,000,000 for endowment capital owned by hospitals, which is invested in income-producing assets for the support of hospital service (see chapter ix).

HOSPITALS, BEDS, AND CAPITAL INVESTMENT IN AMERICAN HOSPITALS, AS OF DECEMBER 31, 1928

	Hospitals	Beds	Capital Investment
"Registered" hospitals	6,852	892,934	$3,090,123,000
Non-registered hospitals	458	12,000	35,000,000
Total	7,310	904,934	$3,125,123,000

The estimate of total capital investment shown above is less than has been offered by various other writers on the subject, some of whom have placed the amount as high as four or five billion dollars for plant and equipment alone. The total of $3,125,123,000 is submitted as a liberal estimate of the capital investment in American hospitals as of December 31, 1928, as calculated by the method explained in detail in Appendix A. A value representing the average investment per bed for all hospitals in each subgroup was multiplied by the total registered bed capacities of the respective classes of hospitals.

INVESTMENT PER BED

The capital investment of a given hospital may be expressed in terms of the "investment per bed." This figure is determined by dividing the value of the plant and equipment by the bed capacity. The investment per bed is a rough measure of the

elaborateness and of the adequacy of hospital plant and equipment, but must be used with care in appraising the facilities of any given hospital. The appropriate investment per bed for a given hospital is affected by the type of medical service offered, by its geographical location, and by the scope of its functions other than for bed care of patients. There are, of course, important intangible values in hospital service which cannot be reduced to a monetary standard of measurement.

Investment per bed does not, of course, mean the mere valuation of a patient's bed, nor the furniture and equipment directly attaching to each patient's bed available in the hospital. It represents a proportionate share of the total investment in all hospital facilities—the buildings and equipment for housing, feeding, and treating patients; the power plant; the laundry; the nurses' residence; the research laboratories; the administration buildings; the out-patient department; the operating room; etc. It does not include the value of rented buildings, such as nurses' quarters, nor investments in real estate or other assets not utilized directly or indirectly in the care of patients.

The investment per bed of a hospital is not a fixed valuation: during any given fiscal period it may be increased or decreased by the addition or reduction of facilities or available patient beds. For example, a 200-bed hospital in a suburb of Chicago recently increased its investment per bed by $1,500 through the construction of an employees' residence and a power plant at a total cost of $300,000. On the other hand, a decrease was achieved by a hospital in Iowa: the main hospital building, erected at a cost of $600,000, had been used for several years to accommodate 100 patients and 50 student nurses. The investment per bed was therefore $6,000. Later the student nurses were established in rented quarters and the available patient-bed capacity was automatically increased to 150. Through this change the investment per bed was reduced to $4,000.

DISTRIBUTION OF CAPITAL INVESTMENT

The distribution of the capital investment among classified hospitals is presented in Table III, which should be studied in

TABLE III

CAPITAL INVESTMENT AS OF DECEMBER 31, 1928, IN 6,852 HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

Control	General	Nervous and Mental	Tuberculosis	Special	Institutional	Totals
Federal	$ 122,841,000	$ 38,595,000	$ 28,034,000	$ 1,530,000	$ 8,715,000	$ 199,715,000
State	51,664,000	660,401,000	49,012,000	7,056,000	25,335,000	793,468,000
County	86,915,000	44,270,000	43,890,000	5,260,000	6,925,000	187,260,000
City	136,774,000	23,486,000	20,517,000	28,430,000	1,882,000	211,089,000
City and county	17,441,000	182,000	4,726,000	1,149,000	1,510,000	25,008,000
Total governments	$ 415,635,000	$766,934,000	$146,179,000	$ 43,425,000	$44,367,000	$1,416,540,000
Independent	585,019,000	20,934,000	20,457,000	72,656,000	7,668,000	706,734,000
Church	627,498,000	12,301,000	9,275,000	23,951,000	4,112,000	677,137,000
Fraternal	11,821,000	.....	1,967,000	3,411,000	3,345,000	20,544,000
Total non-profit associations	$1,224,338,000	$ 33,235,000	$ 31,699,000	$100,018,000	$15,125,000	$1,404,415,000
Individual and partnership	81,642,000	12,192,000	7,647,000	14,336,000	.....	115,817,000
Incorporated	102,027,000	7,650,000	8,850,000	9,700,000	.....	128,227,000
Industrial	25,124,000	.....	.....	.....	.....	25,124,000
Total proprietary	$ 208,793,000	$ 19,842,000	$ 16,497,000	$ 24,036,000	.....	$ 269,168,000
Total registered hospitals	1,848,766,000	820,011,000	194,375,000	167,479,000	59,492,000	3,090,123,000

connection with Table I in chapter ii. Figures 3 and 4 illustrate graphically the interrelationships existing among hospitals operating under certain types of control and providing various kinds

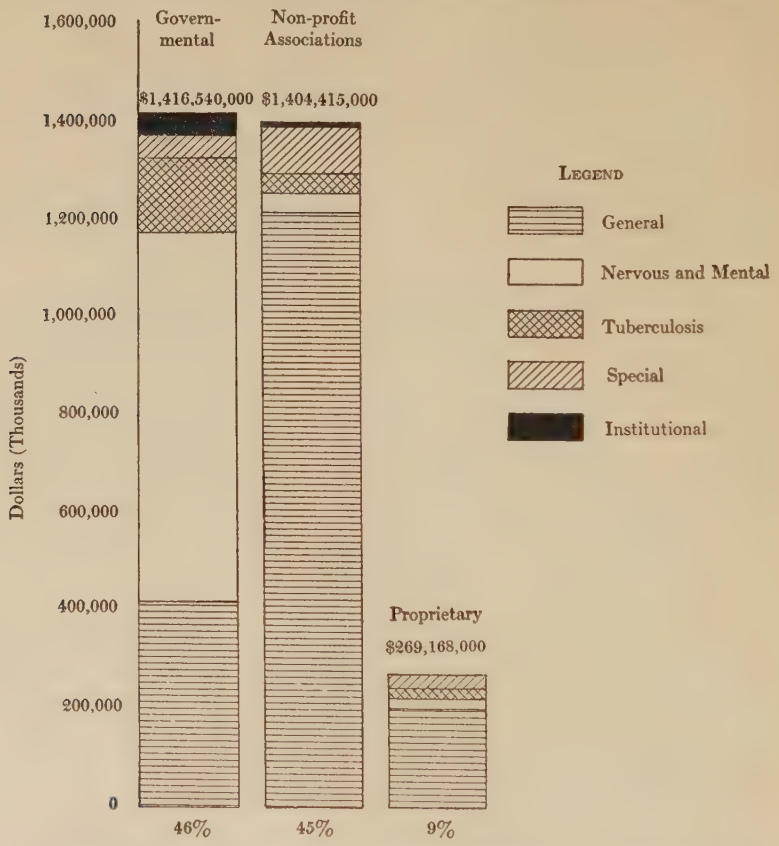

Fig. 3.—Capital investment in hospitals, $3,090,123,000, compared as to type of control and subdivided by type of medical service (6,852 hospitals registered by the American Medical Association in 1928).

of medical service. These charts represent identical totals of capital investment (the amount appearing in Table III) and are prepared according to the same quantitative scale. Figure 3

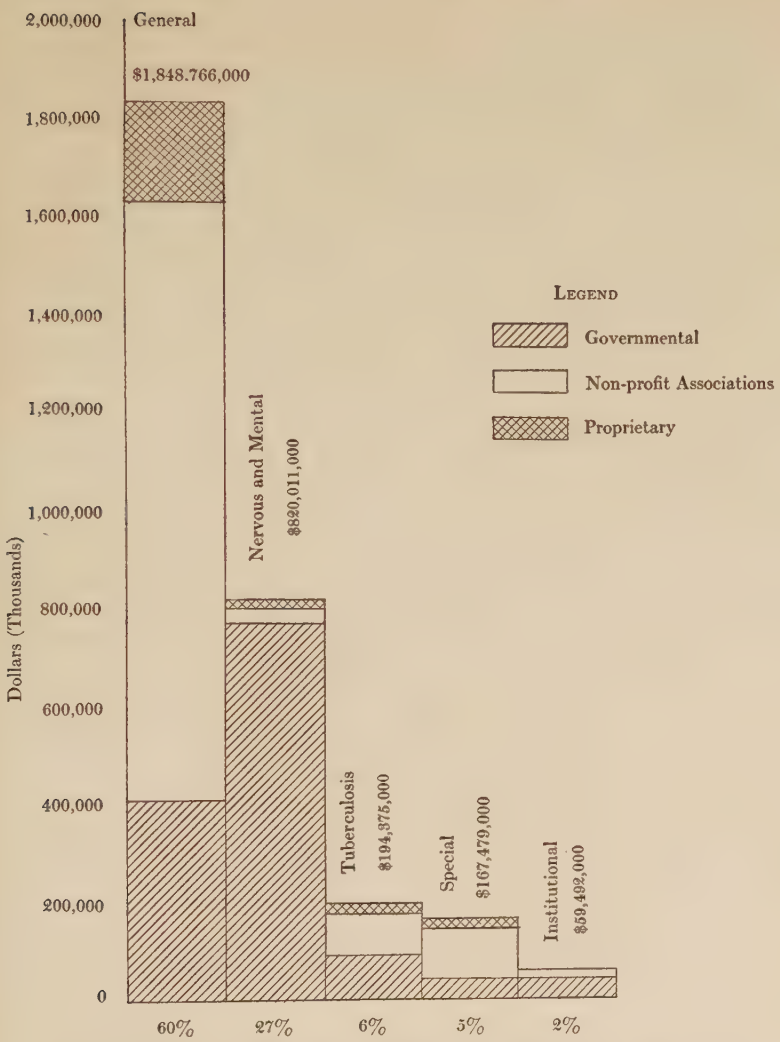

Fig. 4.—Capital investment in hospitals, $3,090,123,000, compared as to type of medical service and subdivided by type of control (6,852 hospitals registered by the American Medical Association in 1928).

places primary emphasis upon type of control, with types of medical service shown as subsidiary classifications. Figure 4 sets forth the capital invested in hospitals for various types of medical service, with indication of the degree to which each type of control prevails among the various groups.

Governments and non-profit associations share about equally in the control of total capital investment, the combined capital for hospitals in these groups being 91 per cent. Among the governments, the states lead, with nearly $800,000,000. The federal government, the cities, and the counties each control approximately $200,000,000. Among the non-profit group, 98 per cent of the capital is controlled by the independent associations and churches, with the share slightly greater for the former group. Of the relatively small capital investment in hospitals administered by proprietary groups, almost all is controlled in about equal amounts by individuals or partnerships and by business corporations. The industrial hospitals are important as a special form of organization for hospital service, rather than for the amount of their capital investment.

Three-fifths of the total capital investment, 60 per cent, is devoted to hospitals for general medical and surgical service. The total capital investment for this group is estimated at approximately $1,850,000,000. Hospitals for nervous and mental cases rank second in total capital investment, with 27 per cent, or more than $800,000,000. Third in importance are the tuberculosis hospitals, which are estimated to have a total value of nearly $200,000,000, or about 6 per cent of the total. The special hospitals follow, with a sum nearly as large; and the institutional hospitals represent but 2 per cent.

RELATIONS BETWEEN CONTROL AND MEDICAL SERVICE

Most of the capital investment in general hospitals, about two-thirds, has been provided by non-profit associations. Conversely, most of the capital invested by non-profit associations has been concentrated in general hospitals. The entire capital investment controlled by non-profit associations is approximate-

ly $1,400,000,000, of which more than $1,200,000,000 is invested in general hospitals. The various governmental units have provided less than one-fourth of the capital invested in general hospitals. The cities and the counties control nearly a quarter of a billion dollars of hospital capital, but the federal government and the states have been less active in this field.

The concentration on general hospital care is more marked among the church hospitals than the independent associations, although these two classes of agencies may be said to dominate the control of hospital service for acute diseases and conditions. The relatively small capital investment in proprietary hospitals is almost entirely concentrated in general hospitals.

Among mental hospitals, the leadership is definitely shifted to governmental institutions. Over 90 per cent of such capital investment is under governmental auspices, with 80 per cent, or two-thirds of a billion dollars, provided by the various states. The substantial amounts under the control of counties and the federal government are dwarfed by comparison with the investment in state hospitals. Nearly half of the total capital investment in all hospitals under governmental control is concentrated in state hospitals for nervous and mental cases.

Governmental control is also dominant in the field of tuberculosis hospital service, the government hospitals representing about three-fourths of the total, which is slightly less than $200,000,000. This situation, together with the predominance of government responsibility for psychopathic cases, indicates the extent to which government units have provided hospital service for patients who require long periods of custody rather than treatment for acute diseases and conditions. Private agencies provide but a small proportion of the hospital beds for mental and tuberculosis cases. Among the tuberculosis hospitals there is a less definite concentration of the governmental control. The states rank first among the governmental agencies, but the total of $49,000,000 is less than the amount provided by cities and counties combined. The federal government also provides a substantial portion of the total. The total facilities in the

tuberculosis hospitals are, of course, small in comparison with the investment represented by general or nervous and mental hospitals. For, although the government units have provided three-fourths of the capital in tuberculosis hospitals, this investment is but $146,000,000. On the other hand, although government general hospitals represent but 22 per cent of the capital investment in all general hospitals, even this small percentage amounts to $416,000,000.

The investment in hospital departments for the residents of institutions is primarily concentrated in governmental institutions, the largest amount being controlled by the various states.

The "special" hospitals are an important group, although they represent but 5 per cent of the total hospital capital. About 60 per cent is administered by non-profit associations, mainly independent associations, which operate hospitals for children and for orthopedic and maternity service. Most of the special hospitals controlled by churches are for maternity service.

Among the governmental special hospitals the leadership is held by the cities, with their approximately 80 hospitals for the isolation of patients with contagious diseases.

VARIATIONS AMONG INDIVIDUAL HOSPITALS

The amounts of capital investment for the groups of hospitals set forth in Table III do not usually represent similar grades of hospital facilities for all hospitals within each class. Within any particular group there are represented large and small institutions, old and new ones, those which possess fireproof buildings and modern medical and surgical apparatus as well as those utilizing frame structures and well-nigh obsolete equipment. An average investment per bed for any given group would not typify the large number of institutions within the class. The average investment per bed for all American hospitals is approximately $3,500, ranging from approximately $2,000 for the state nervous and mental hospitals to more than $6,000 for the general hospitals of independent associations. Individual hospitals may show investments per bed which are below or

above these limits, and even within a so-called "homogeneous" classification the range may be very great. This distribution of hospital capital must, therefore, be considered as well as its total amount. The following chapter will direct attention to the way capital investment is distributed among the 6,852 hospitals when considered from the point of view of their respective types of control, types of medical service and bed capacity.

CHAPTER IV

FACTORS INFLUENCING CAPITAL INVESTMENT

Many factors influence the amount of capital investment in a particular hospital. These include the auspices under which it is administered, the type of medical service for which it is intended, and the extent of the facilities which are provided. The present chapter will analyze the distribution of total capital investment in hospitals with regard to control, service, and bed capacity. These factors are of course interdependent, but for the present discussion they will be considered separately.

In Figure 5 there is illustrated graphically the percentage distribution of the investment in hospitals classified according to their types of control, types of medical service, and bed capacities. The three illustrations are based upon the data appearing in Tables IV, V, and VI, which are separately discussed in the following paragraphs.

DISTRIBUTION ACCORDING TO CONTROL

Table IV shows the distribution of hospitals, beds, and capital investment in terms of their ownership or control. It will be observed that the percentages of hospitals, of beds, and of capital are not identical for the hospitals under similar control. The governmental hospitals represent but 26 per cent of the total institutions, yet they contain 64 per cent of the beds. The percentage of capital investment lies between these figures, at 46 per cent. The explanation of this condition is the relatively high average bed capacity of governmental hospitals, namely, 313 beds, and the relatively low investment per bed, approximately $2,500. Both of these conditions, as will be shown later, arise from the predominance of the mammoth state hospitals for mental cases.

Non-profit association hospitals constitute a high percentage

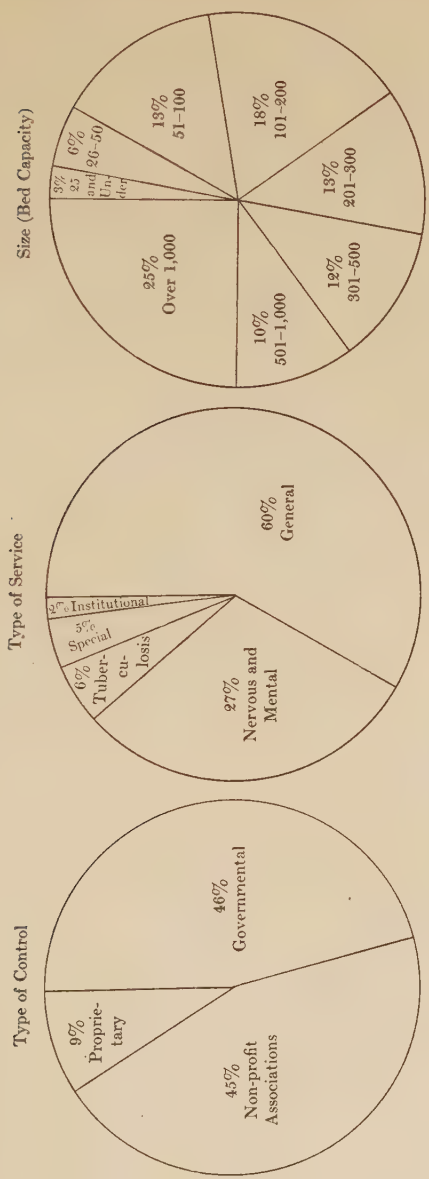

FIG. 5.—Percentage distribution of capital investment in hospitals compared as to type of control, type of medical service, and size of hospitals (based on data in Tables IV, V, and VI).

of the total, 38 per cent; yet the total bed capacity is but 28 per cent, their average size being but 95 beds. In contrast to governmental hospitals, however, their average investment per bed is nearly $6,000, with a resulting total capital investment approximately equal to that of the governmental hospitals. The

TABLE IV

HOSPITALS, HOSPITAL BEDS, AND CAPITAL INVESTMENT CLASSIFIED ACCORDING TO OWNERSHIP OR CONTROL

Hospitals Registered by the American Medical Association in 1928

OWNERSHIP OR CONTROL	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All groups.	6,852	892,934	$3,090,123	100.0	100.0	100.0
Government...	1,813	567,434	$1,416,540	26.4	63.5	45.9
Federal.....	294	61,765	199,715	4.3	6.9	6.5
State.....	595	369,759	793,468	8.7	41.4	25.7
County.....	489	63,231	187,260	7.1	7.1	6.1
City.....	372	65,126	211,089	5.4	7.3	6.8
City and county....	63	7,553	25,008	0.9	0.8	0.8
Non-profit associations...	2,604	247,970	1,404,415	38.0	27.8	45.5
Independent.	1,461	128,059	706,734	21.3	14.4	22.9
Church.....	1,056	114,613	677,137	15.4	12.8	21.9
Fraternal....	87	5,298	20,544	1.3	0.6	0.7
Proprietary....	2,435	77,530	269,168	35.6	8.7	8.6
Individual and partnership....	1,698	39,333	115,817	24.8	4.4	3.7
Incorporated.	580	31,150	128,227	8.5	3.5	4.1
Industrial....	157	7,047	25,124	2.3	0.8	0.8

investment per bed is explained by the high proportion of general hospitals and beds, which require relatively more complete facilities and the provision for the individualized care of acutely ill patients. A study of the number of hospitals and the total bed capacity shown in Table IV reveals the fact that hospitals under church auspices are larger than others in the non-profit association group.

Proprietary hospitals are large in number but small in total bed capacity and capital investment. The average size of the 2,435 such hospitals is something more than 30 beds, with those controlled by individuals having less than 25 beds each. More than one-third of all registered hospitals are conducted under proprietary auspices, yet this group contains but one-twelfth of the total beds and capital investment.

DISTRIBUTION ACCORDING TO SERVICE

Table V shows the distribution of hospitals, beds, and capital investment according to medical service. Two-thirds of the hos-

TABLE V

HOSPITALS, HOSPITAL BEDS, AND CAPITAL INVESTMENT CLASSIFIED ACCORDING TO TYPE OF MEDICAL SERVICE

Hospitals Registered by the American Medical Association in 1928

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types...	6,852	892,934	$3,090,123	100.0	100.0	100.0
General.....	4,538	370,613	$1,848,766	66.2	41.5	59.8
Nervous and mental.....	553	393,737	820,011	8.1	44.1	26.6
Tuberculosis...	507	61,999	194,375	7.4	6.9	6.3
Special.....	719	42,788	167,479	10.5	4.8	5.4
Institutional...	535	23,797	59,492	7.8	2.7	1.9

pitals are "general"; and most of the capital investment, 60 per cent, is in this group. As to bed capacity, however, the general hospitals take second place, with but 41 per cent. The hospitals average about 80 beds in capacity, with an investment per bed of approximately $5,000 and an average investment per hospital of about $400,000. This group of hospitals ranges widely in total investment, from certain 12- and 15-bed hospitals in rural areas, with total investment of $25,000 or less, to the 3,400-bed Cook County (Illinois) Hospital and the 700-bed hospital at

the Columbia Presbyterian Health Center in New York, each having capital investments of more than $10,000,000.

Hospitals for nervous and mental cases present a different picture. They are fewer in number, but represent an average bed capacity of 712, which is a figure midway between some very large state hospitals at the one extreme and some very small proprietary hospitals at the other. The average investment per bed is slightly in excess of $2,000, with the investment per hospital approaching $1,500,000.

Tuberculosis hospitals are a relatively minor group in terms of number of beds and total capital, representing about 7 per cent of the total hospitals, beds, and capital investment. The hospitals are, on the average, larger than those for "general" care, the average being 122 beds in capacity. The average investment per bed for this group is slightly above $3,000, and the average investment per hospital about $400,000.

The special hospitals comprise approximately 10 per cent of all hospitals registered, but contain less than 5 per cent of the beds. They represent a wide variety of facilities, ranging from simple accommodations for convalescent patients to hospitals with elaborate diagnostic and therapeutic equipment for skin and cancer cases.

DISTRIBUTION ACCORDING TO SIZE

Table VI shows the distribution of hospitals, beds, and capital investment according to the size of the hospitals. The discussion in terms of bed capacity shows that most of the capital investment is concentrated in the relatively few large hospitals. Although there are 4,038 hospitals reporting bed capacities of 50 or less, this group of institutions contains but 10 per cent of the total capital investment. At the other extreme, the hospitals with more than 500 beds are but 4.4 per cent of the total number of institutions, but represent 35 per cent of the total hospital capital. The concentration is not due entirely to the greater total bed capacities of the larger hospitals. There is a tendency for hospitals to improve their facilities, and hence their invest-

ment per bed, as they grow larger. This is particularly true of the larger general hospitals, which invest in facilities for out-patient service, nurses' education, interne-training, and public health services.

The average investment per hospital for the various sizes reveals the fact that many small amounts of capital are invested throughout the United States. The hospitals with 25 beds or less represent average investments of approximately $40,000.

TABLE VI

HOSPITALS, HOSPITAL BEDS, AND CAPITAL INVESTMENT CLASSIFIED ACCORDING TO SIZE OF HOSPITALS

Hospitals Registered by the American Medical Association in 1928

SIZE OF HOSPITAL (BED CAPACITIES)	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All sizes...	6,852	892,934	$3,090,123	100.0	100.0	100.0
25 beds and under.....	2,453	38,918	$104,208	35.8	4.4	3.4
26–50 beds.....	1,585	61,222	200,321	23.1	6.9	6.4
51–100 beds....	1,247	93,813	395,554	18.2	10.5	12.8
101–200 beds...	772	112,179	549,407	11.3	12.6	17.8
201–300 beds...	306	76,350	401,783	4.4	8.5	13.0
301–500 beds...	189	72,556	356,709	2.8	8.1	11.5
501–1,000 beds.	115	82,587	317,282	1.7	9.2	10.3
Over 1,000 beds	185	355,309	764,859	2.7	39.8	24.8

The average investment in these small institutions is very small when compared with $4,000,000 for the average hospital reporting more than 1,000 beds.

Reference to the five tables in Appendix B reveals many facts concerning the distribution of hospital capital within the size groups, according to control and medical service. For instance, 80 per cent of the general hospitals report bed capacities of 100 or less. There are but 923 of the 4,538 general hospitals which have more than 100 beds. Nevertheless, this group represents nearly one and one-third billions of capital investment.

The hospitals for nervous and mental diseases are not all large; however, most of the beds for nervous and mental cases are located in exceedingly large hospitals. The 220 hospitals reporting bed capacities of 100 or less have an average bed capacity of less than 40, and contain less than 3 per cent of the beds and capital investment in nervous and mental hospitals. Approximately 90 per cent of the available beds, as well as the capital investment, is located in hospitals with reported bed capacities of 1,000 or more. The average investment per bed in the smaller nervous and mental hospitals tends to be higher than for the very large ones, as many of the small institutions include private accommodations and modern medical equipment. The large institutions are, for the most part, intended for ward service; and their facilities are limited to those for custodial care. All but two of the institutions reporting more than 1,000 beds are under government auspices. One of these two accepts a number of referred patients for which it is reimbursed by the state; the other is a hospital "school" for mentally deficient children.

The tuberculosis hospitals represent a much smaller total capital investment and bed capacity than either of the previously mentioned groups. Here again, there is a predominance of small hospitals, 66 per cent reporting bed capacities of 100 or less. The majority of the available beds, as well as the capital investment, is found in the hospitals reporting bed capacities of from 101 to 500 beds. There are only 10 larger than these, containing a combined total of approximately 9,000 beds. The National Tuberculosis Association does not recognize as a "hospital" any institutions with less than 25 beds for patients. On the other hand, they list in their *Tuberculosis Sanatorium Directory* hospitals which are not exclusively for tuberculosis service but which accept tuberculosis patients in limited numbers. In the 1928 directory the number of hospitals listed was 508, with reported bed capacity of 69,457. Approximately 70 hospitals with less than 25 beds were excluded, but an equivalent number of hospitals classed in this report as "general" were added.

The tuberculosis beds in these general hospitals raised the total to more than 69,000, about 7,500 more tuberculosis beds than are registered by the American Medical Association, even after excluding the small institutions.

The predominance of the small institutions among the "special" groups is more definitely marked than for any of the types of hospitals mentioned above. Approximately 600 of the 719 general hospitals report bed capacities of 100 or less. There are but four special hospitals with capacities of more than 500 each. One of these is a municipal isolation hospital with capacity for 1,200 patients.

The institutional hospitals may be dismissed with a brief word of explanation and comment. More than 92 per cent of these hospitals report bed capacities of 100 or less, with 28 ranging from 101 to 500, and only 4 above 500. An average investment of $2,500 per bed has been used as representing the value of all these hospitals. Most of them are very small; the average for those of all sizes is barely 40 beds. Some of the large ones are not hospitals at all, but homes for aged and infirm, particularly those for disabled and aged volunteer soldiers.

CHAPTER V

THE UNEVEN GEOGRAPHIC DISTRIBUTION

Hospitals are not evenly distributed throughout the geographical areas of the United States. This is true whether expressed in terms of numbers of hospitals, numbers of beds, or amount of capital valuation. For the purposes of the present discussion, the entire United States has been divided into five sections, selected because they represent populations characterized by similar geographic and economic conditions. The states comprising these sections are shown below.

CLASSIFICATION OF STATES BY GEOGRAPHIC SECTIONS

North and Middle Atlantic
- Connecticut
- Delaware
- District of Columbia
- Maine
- Maryland
- Massachusetts
- New Hampshire
- New Jersey
- New York
- Pennsylvania
- Rhode Island
- Vermont

South and South Atlantic
- Alabama
- Arkansas
- Florida
- Georgia
- Kentucky
- Louisiana
- Mississippi
- North Carolina
- Oklahoma
- South Carolina
- Tennessee
- Texas
- Virginia
- West Virginia

Central West
- Illinois
- Indiana
- Michigan
- Ohio
- Wisconsin

Central Northwest
- Iowa
- Kansas
- Minnesota
- Missouri
- Nebraska
- North Dakota
- South Dakota

Far West
Arizona
California
Colorado
Idaho
Montana
Nevada
New Mexico
Oregon
Utah
Washington
Wyoming

Table VII shows the distribution of the hospitals, beds, and capital investment according to the five geographical areas.

TABLE VII

GEOGRAPHIC DISTRIBUTION OF HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION IN 1928

GEOGRAPHICAL LOCATION	AREA, NUMBER, AND AMOUNT					PERCENTAGE				
	Area (Square Miles)	Population	Number of Hospitals	Number of Beds	Capital Investment (Thousands)	Area (Sq. Mi.)	Population	Hospitals	Beds	Capital Investment
North and Middle Atlantic.....	184,000	35,900,000	1,938	338,473	$1,266,950	6	30	29	38	41
South and South Atlantic.....	887,000	34,900,000	1,588	160,470	463,518	29	29	23	18	15
Central West	248,000	24,900,000	1,264	187,757	772,531	8	21	18	21	25
Central Northwest.	518,000	13,300,000	943	97,624	216,309	17	11	14	11	7
Far West....	1,189,000	11,000,000	1,119	108,610	370,815	39	9	16	12	12
Total...	3,026,000	120,000,000	6,852	892,934	$3,090,123	100	100	100	100	100

NOTE.—For general hospitals, other than federal, an average investment per bed was established for all general hospital beds under each type of control. This amount was the investment per bed in Appendix C for hospitals of the size group which was the average for the geographical area. The difference from the total capital investment for all general hospitals was adjusted in the total value for the North and Middle Atlantic states. Federal general hospitals were estimated at $4,000 per bed, except for the South and South Atlantic, to which was apportioned the remainder.

The capital in all nervous and mental hospitals was distributed to geographical areas in proportion to reported bed capacity, except the capital in hospitals under individual auspices, which was first distributed by actual count of beds at a value of $3,000 per bed. The capital investment in tuberculosis hospitals was all distributed on the basis of bed capacity. The same was true of the institutional group. The capital invested in special hospitals was apportioned on the basis used for general hospitals, except for the four federal hospitals, which were evaluated at $3,000 per bed.

The areas, expressed in square miles, were taken from a standard atlas; the population figures are the amounts reported in the March 30, 1929, issue of the *Journal of the American Medical Association:* the hospitals and beds were determined by an actual count of the 6,852 registered hospitals. The method of

estimating the capital investment is set forth in the footnote to the table.

The geographical location of hospital beds and hospital capital corresponds more or less closely to the number of inhabitants. The relation is less marked with respect to hospitals and capital investment. The North and Middle Atlantic states have 30 and 29 per cent of population and hospitals, respectively, but 38 per cent of the total beds and 41 per cent of the capital investment. This indicates a larger average size for individual hospitals, as well as a correspondingly higher investment per bed. The South and South Atlantic states have nearly as large a population and hospital census as the first group; yet the beds are but 18 per cent and the capital investment but 15 per cent of the total.

Other percentages reveal the fact that more than two-thirds of the capital investment is in hospitals in the North and Middle Atlantic and in the Central West, as these areas have been previously defined. These areas comprise but 14 per cent of the geographical area but have 51 per cent of the population, 59 per cent of the total bed capacity, and 66 per cent of the hospital capital.

Table VIII classifies the hospitals and beds in the various geographical areas according to their medical services and three types of control: federal government, state and local government, and non-government.

The federal hospitals tend to be more or less evenly distributed throughout the country, although a relatively large number of them are located in the Far West. They are separated in Table VIII and in those following, in order that comparisons can be drawn among the non-federal institutions which are intended to serve the public in which the hospital is located.

There are 1,190 general hospitals in the southern states, more than in any of the other geographic areas, but their average bed capacity is only 61. This average size is contrasted with 127 for the North and Middle Atlantic states, which contain 1,052 general hospitals. Hospitals for nervous and mental cases are distributed more or less according to population, except that

TABLE VIII

HOSPITALS AND BEDS BY GEOGRAPHIC SECTIONS, CLASSIFIED ACCORDING TO CONTROL AND TYPE OF MEDICAL SERVICE

TYPE	CONTROL						TOTAL	
	Federal		State and Local		Non-governmental			
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
North and Middle Atlantic								
General	52	8,790	112	29,787	888	91,231	1,052	129,808
Nervous and mental	7	8,343	93	135,056	105	9,756	205	153,155
Tuberculosis	4	1,442	90	14,953	67	6,048	161	22,443
Special	.....	.....	52	7,513	287	18,221	339	25,734
Institutional	2	381	93	4,082	86	2,870	181	7,333
Total	65	18,956	440	191,391	1,433	128,126	1,938	338,473
Percentage							28.3	37.9
South and South Atlantic								
General	53	7,501	125	13,670	1,012	48,063	1,190	69,234
Nervous and mental	3	1,666	46	67,160	36	1,894	85	70,720
Tuberculosis	6	3,561	42	6,255	57	2,963	105	12,779
Special	3	478	10	612	81	2,357	94	3,447
Institutional	2	768	73	2,641	39	881	114	4,290
Total	67	13,974	296	90,338	1,225	56,158	1,588	160,470
Percentage							23.2	18.0
Central West								
General	22	3,606	137	18,104	649	53,268	808	74,978
Nervous and mental	3	2,318	82	82,048	48	3,090	133	87,456
Tuberculosis	.....	.....	71	9,273	16	1,299	87	10,572
Special	.....	.....	27	1,834	92	5,216	119	7,050
Institutional	3	2,158	57	3,943	57	1,600	117	7,701
Total	28	8,082	374	115,202	862	64,473	1,264	187,757
Percentage							18.4	21.0

TABLE VIII—*Continued*

Type	Control						Total	
	Federal		State and Local		Non-governmental			
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
Central Northwest								
General	34	3,549	59	6,474	623	32,136	716	42,159
Nervous and mental	3	1,028	37	41,976	28	1,976	68	44,980
Tuberculosis	1	80	30	4,528	6	434	37	5,042
Special	1	32	21	1,259	43	1,910	65	3,201
Institutional	3	162	41	1,685	13	395	57	2,242
Total	42	4,851	188	55,922	713	36,851	943	97,624
Percentage							13.8	10.9
Far West								
General	71	10,503	107	13,053	594	30,878	772	54,434
Nervous and mental	4	2,117	29	34,310	29	999	62	37,426
Tuberculosis	16	3,265	22	2,936	79	4,962	117	11,163
Special	.....	.....	13	607	89	2,749	102	3,356
Institutional	1	17	50	1,910	15	304	66	2,231
Total	92	15,902	221	52,816	806	39,892	1,119	108,610
Percentage							16.3	12.2
Grand total	294	61,765	1,519	505,669	5,039	325,500	6,852	892,934
Percentage							100	100

among the non-governmental group, the North and Middle Atlantic states contain nearly 10,000 beds out of a total of less than 18,000 for all areas combined. There are almost no tuberculosis hospitals in the Central Northwest—only 37, with a total bed capacity of 5,042. Of 225 non-governmental tuberculosis hospitals, 79 are located in the Far West.

The North and Middle Atlantic states contain 1,873 hospitals, other than federal, of which 440 state and local govern-

mental institutions contain approximately 191,000 beds and 1,433 non-governmental hospitals contain 128,000 beds. Of this group there were in 1928 exactly 1,000 registered general hospitals: 89 per cent of the general hospitals were under non-governmental auspices, and contained approximately 80 per cent of the beds for general care. In the field of mental care, non-governmental institutions exceed those under state and local auspices, although the total capacity showed a decided reverse tendency. In the field of tuberculosis care the governments lead, both in number of institutions and in number of beds. Special hospitals in this geographical area are predominantly under the control of non-governmental institutions.

The South and South Atlantic states in general show similar relationships. Among the general hospitals, more than 85 per cent of the hospitals and 69 per cent of the beds are under non-governmental auspices. Governmental nervous and mental hospitals dominate the situation in number of beds, as well as number of hospitals. The non-governmental tuberculosis hospitals exceed those under state and local auspices; however, the latter are larger and contain twice as many beds. Among the special hospitals there is a ratio of 8 to 1 in favor of the non-governmental institutions.

In the Central West there are 374 state and local government hospitals, with about 115,000 beds; and 862 non-governmental hospitals, with approximately 65,000 beds. Most of the hospitals in this area are of the general type. Governmental nervous and mental hospitals lead both in institutions and bed capacity, and the same relationship obtains with respect to tuberculosis care. The leadership shifts to non-governmental auspices in the case of the relatively large number of special hospitals, there being 92 private hospitals in contrast to 27 under governments.

In the Central Northwest there are but 230 governmental hospitals, as opposed to 713 under non-governmental control. The number of total governmental beds, however, exceeds those under private control for all groups except the general hospitals,

among which five-sixths of the beds are under non-governmental auspices.

"LOCAL" HOSPITALS

Knowledge of the bed capacities of the different types of registered hospitals in the various geographical areas makes it possible to compare the extent to which governmental units and private agencies share in the provision of "local" hospital facilities and also to compare the ratio of hospital beds to population. In the following paragraphs and in Tables IX and X such comparisons are drawn, although it is not implied that mere numerical ratios can be a measure of the most desirable modes of providing hospital capital or of the adequacy of hospital facilities.

There have been included as "local" hospitals only those registered as "general" or as "special" hospitals. Federal hospitals of all kinds are excluded, also all nervous and mental, tuberculosis, and institutional hospitals regardless of their auspices. The purpose of using this limited interpretation of the term "local hospital" is to throw light on the availability to the general public of hospital beds for acute diseases and conditions. It is the patients of this group of hospitals who comprise the majority of the general public and who return to normal community life after relatively brief periods of hospitalization. Exception might be taken to including all types of special hospitals among this group, particularly those for chronic and incurable cases. But these hospitals are few in number and in bed capacity; moreover, their services are balanced to some degree by the occasional treatment of temporary or acute cases in the hospitals other than for the local communities.

The federal hospitals, and the institutional, tuberculosis, and nervous and mental hospitals, are excluded from the "local" group because of the special relationships they bear to their immediate communities. Such facilities are of course important, but they represent a type of hospital accommodation which is but seldom availed of by the immediately adjacent public. It is true, of course, that there are local patients in many govern-

TABLE IX

"Local"* Hospitals, Their Bed Capacity, and Capital Investment Classified as to Type of Control, by Geographic Divisions of the United States

Geographical Location	State and Local Government			Non-governmental			Total		
	Hospitals	Beds	Capital Investment (Millions)	Hospitals	Beds	Capital Investment (Millions)	Hospitals	Beds	Capital Investment (Millions)
North and Middle Atlantic	164	37,300	$146	1,175	109,452	$ 742	1,339	146,752	$ 888
South and South Atlantic	135	14,282	43	1,093	50,420	178	1,228	64,702	221
Central West	164	19,938	69	741	58,484	328	905	78,422	397
Central Northwest	80	7,733	29	666	34,046	151	746	41,779	180
Far West	120	13,660	48	683	33,627	158	803	47,287	206
Total	663	92,913	$335	4,358	286,029	$1,557	5,021	378,942	$1,892

* All "general" and "special" hospitals registered by the American Medical Association in 1928, excluding those under federal control. This also excludes all nervous and mental, tuberculosis, and institutional hospitals.

TABLE X

Hospital Beds and Capital Investment in "Local"* Hospitals Compared with Population, by Geographic Divisions of the United States

Geographic Division	Population	Beds	Capital Investment (Millions)	Population per Bed	Investment per Person
North and Middle Atlantic	35,900,000	146,752	$ 888	245	$25
South and South Atlantic	34,900,000	64,702	221	539	6
Central West	24,900,000	78,422	397	318	16
Central Northwest	13,300,000	41,779	180	317	14
Far West	11,000,000	47,287	206	232	19
Total	120,000,000	378,942	$1,892	317	$16

* All "general" and "special" hospitals registered by the American Medical Association in 1928, excluding those under federal control. This also excludes all nervous and mental, tuberculosis, and institutional hospitals.

mental tuberculosis hospitals, but such facilities are ordinarily provided without regard to the needs of the community in which the hospital itself is located. The number and valuation of the non-governmental hospitals for nervous and mental and tuberculous cases are not quantitatively very great. Moreover, many of them draw their patients from relatively distant geographical areas.

The total investment in "local" hospitals, as the term has been previously defined, is estimated to be $1,892,000,000. This is something more than 60 per cent of the total capital investment in all hospitals. The group includes 5,021 hospitals, of which 4,358 are under non-governmental auspices, and 663 conducted by the states, cities, and counties. The total bed capacity is 378,942, with approximately 75 per cent being under private control. The capital investment is predominately under non-governmental auspices, with these hospitals representing nearly 85 per cent of the total.

The North and Middle Atlantic states contain the largest amount of capital investment in local community hospitals—more than 45 per cent of the estimated total for the entire United States. This results from a relatively high average investment per bed as well as the large average size of the hospitals, 110 beds per institution. The non-governmental hospitals dominate community hospital service in every respect, except average size; the governmental group are smaller in number and in average investment per bed. The investment per bed for non-governmental hospitals is nearly $7,000; for governmental hospitals, about $4,000.

In the South and South Atlantic states, the leadership of private hospitals is equally pronounced, although the hospitals are much smaller and the investment per bed is much lower. There are 1,228 local community hospitals, with a total capital investment of only $221,000,000. The average investment per bed for all hospitals is less than $3,500.

The Central West and Central Northwest states contain 1,651 hospitals, which comprise 33 per cent of the local community

hospitals in the country. The 120,201 beds are 32 per cent of the total, and the $577,000,000 capital investment is 30 per cent of the total. These twelve states may be said to represent the average conditions of the country, the investment per bed of approximately $4,800 being midway between approximately $6,000 typifying the North and Middle Atlantic states and $3,500 in the South. But there are certain differences between the five states east of the Mississippi River and the seven west of it. Hospitals in the former group have an average bed capacity of 85, the latter group but 55. Throughout both areas there is a predominance of non-governmental hospitals, although the few governmental hospitals show a relatively large number of beds.

In the Far West there are 803 general and special hospitals, other than federal. They comprise 16 per cent of the total number of hospitals and contain 12 per cent of the available beds.

Are the various geographical sections of the country adequately provided for with respect to hospital facilities? As was previously stated, this question cannot be answered without special knowledge of many factors in a given locality, and the conclusions with respect to one local community cannot be said to apply to a large geographical area. Table X sets forth two criteria by which the entire hospital facilities of various localities can be compared with each other. These standards are the ratios of the beds and the capital investment per member of the population. The first ratio is expressed as population per bed and shows wide variation among the various geographical areas. The Far West leads with a low ratio of population per bed (232) and is followed closely by the North and Middle Atlantic section (245). The two central sections are next, with each bed serving a larger group (317 and 318). The southern states have relatively fewer beds than any other group, with each one serving 539 inhabitants.

The second criterion is investment per capita and shows relationships inverse to the former. Adequate facilities would normally be indicated by a relatively high investment in hospital

capital with respect to the total population. The North and Middle Atlantic states, with $25.00, are well in the lead in this regard, surpassing the Far West by virtue of a relatively higher investment per bed, as may be observed from data in Table X or in previous tables. The lowest investment per capita obtains in the South and South Atlantic states, where the average is $6.00. Figure 6 shows graphically many of the data included in Tables VII, IX, and X.

LOCATION OF LARGE GENERAL HOSPITALS IN THE UNITED STATES

There were 859 general hospitals, other than federal, reported as having bed capacities of more than 100 in 1928. Seven hun-

TABLE XI

LARGE GENERAL HOSPITALS (OTHER THAN FEDERAL) CLASSIFIED BY GEOGRAPHIC SECTIONS

GEOGRAPHICAL SECTION	STATE AND LOCAL GOVERNMENTS					NON-GOVERNMENTAL					TOTAL HOSPITALS
	101 to 200	201 to 300	301 to 500	Over 500	Total	101 to 200	201 to 300	301 to 500	Over 500	Total	
North and Middle Atlantic	14	10	6	15	45	177	62	38	14	291	336
South and South Atlantic	27	9	3	3	42	61	16	6	....	83	125
Central West	6	3	2	8	19	115	36	15	6	172	191
Central Northwest	6	1	3	3	13	57	21	4	....	82	95
Far West	17	2	10	3	32	50	24	6	....	80	112
Total	70	25	24	32	151	460	159	69	20	708	859

dred and eight were under non-governmental auspices, and 151 under the control of state and local governments. Their distribution throughout the United States is shown in Table XI. Of the total number, 39 per cent were located in the North and Middle Atlantic states, as compared with 30 per cent of the population; 15 per cent in the southern states, in contrast to 29 per cent of the population; and 22 per cent in the Central West,

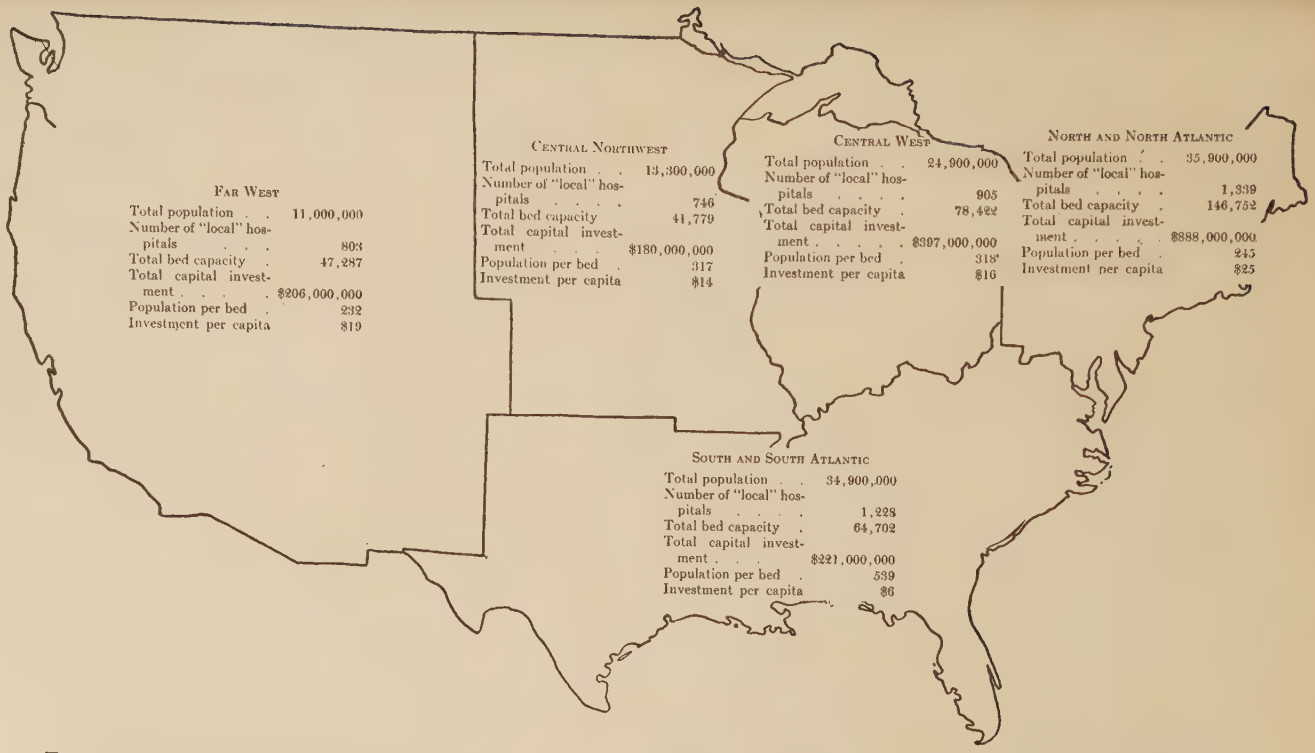
Far West
Total population . . 11,000,000
Number of "local" hospitals . . . 803
Total bed capacity . 47,287
Total capital investment $206,000,000
Population per bed . 232
Investment per capita $19
Central Northwest
Total population . . 13,300,000
Number of "local" hospitals 746
Total bed capacity 41,779
Total capital investment . . $180,000,000
Population per bed . 317
Investment per capita $14
Central West
Total population . . 24,900,000
Number of "local" hospitals 905
Total bed capacity . 78,422
Total capital investment $397,000,000
Population per bed . 318
Investment per capita $16
North and North Atlantic
Total population . . 35,900,000
Number of "local" hospitals 1,339
Total bed capacity . 146,752
Total capital investment $888,000,000
Population per bed . 245
Investment per capita $25
South and South Atlantic
Total population . . 34,900,000
Number of "local" hospitals 1,228
Total bed capacity . 64,702
Total capital investment . . . $221,000,000
Population per bed . 539
Investment per capita $6

FIG. 6.—"Local" hospitals: their number, bed capacity, and capital investment compared as to population, by geographic divisions of the United States. ("Local" hospitals include all general and special hospitals registered by the American Medical Association in 1928, excluding federal. This also excludes all nervous and mental, tuberculosis, and institutional hospitals.)

12 per cent in the Central Northwest, and 13 per cent in the Far West. A few states reported no hospitals of more than 100-bed capacity. These were Nevada, South Dakota, and Mississippi. Those reporting but one such hospital were Wyoming and Vermont. On the other hand, a few states contain a relatively large number. New York had 114, 95 of which were under private auspices and 19 under governmental auspices. Pennsylvania contained 82, 76 of which were private and 6 governmental. Of the 20 non-governmental hospitals reporting more than 500 beds, 14 were located in the North and Middle Atlantic states, the other 6 in the Central West. Of the 69 hospitals reporting from 301- to 500-bed capacity, 38 were located in the North and Middle Atlantic states, 15 in the Central West, 4 in the Central Northwest, and 6 in the Far West. There were fourteen states which reported no non-governmental general hospitals with more than 200-bed capacity. They were Delaware, Maine, New Hampshire, Florida, Mississippi, North Carolina, North Dakota, South Dakota, Arizona, Idaho, Montana, Nevada, New Mexico, and Wyoming.

CHAPTER VI

CAPITAL INVESTMENT IN GOVERNMENT HOSPITALS

Governments play an important rôle in hospitalization. The federal government, the states, the counties, and the cities all provide hospital facilities to a greater or less degree; and the beds under governmental control were approximately 64 per cent of the total number registered by the American Medical Association in 1928. The types of medical services provided differ in their proportions among various governmental units.

FEDERAL HOSPITALS

There were 294 hospitals registered as under federal control in 1928, containing nearly 62,000 beds and with an estimated

TABLE XII

FEDERAL HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS) OF DOLLARS)	PERCENTAGE OF TOTAL		
				Hospitals	Beds	Capital Investment
All types	294	61,765	$199,715	100.0	100.0	100.0
General	232	33,949	$122,841	78.9	55.0	61.5
Nervous and mental	20	15,472	38,595	6.8	25.1	19.3
Tuberculosis	27	8,348	28,034	9.2	13.5	14.0
Special	4	510	1,530	1.4	0.8	0.8
Institutional	11	3,486	8,715	3.7	5.6	4.4

value of about $200,000,000. As may be determined from Table XII, 62 per cent of this capital is invested in general hospitals. Most of the general hospitals are small ones, 167 reporting bed capacities of 100 or less, 47 range from 101 to 500 beds

each, and 18 have more than 500 beds. The average investment per bed for the 232 federal general hospitals is approximately $4,000, as determined by dividing the estimated capital investment by the registered bed capacity. Reliable capital investment data were secured from 16 federal general hospitals, of which 3 were under the Public Health Service, 4 were Veterans' Bureau hospitals, 6 were army hospitals, and 8 were controlled by the Department of the Interior. The average investment per bed for this entire group was $4,049, ranging from less than $1,000 to more than $8,000 per bed for individual hospitals.

The nervous and mental hospitals are large, averaging 750 beds per institution and with only one registered as having a bed capacity of less than 200 beds. The tuberculosis group is also relatively large, 15 of the 27 hospitals having bed capacities of more than 200. The total investment in nervous and mental and tuberculosis hospitals combined is but one-third of the total capital in federal hospitals, a condition which is in sharp contrast to that characterizing the hospitals under state auspices.

There are several federal agencies controlling hospitals. The Veterans' Bureau hospitals lead them all in bed capacity, there being 49 institutions and 22,189 beds registered as under their control in 1928. This group includes 21 general hospitals, with 7,271 beds; 15 for nervous and mental cases, with 9,495 beds; and 13 for tuberculosis patients, with 5,522 beds.[1] Many of the Veterans' Bureau hospitals are new, the temporary buildings utilized following the war being replaced according to a definite program. Public Law 480 (1929) authorized the expenditure of $15,000,000 for additional hospitals. The newer hospitals have been erected at costs ranging from $3,500 to $4,500 per bed, including accommodations for the medical staff, nurses, and

[1] These figures for hospitals and bed capacities do not coincide exactly with data appearing in the 1928 report of the Veterans' Bureau. The differences arise from the opening of one hospital during 1928 which was not included in the register, and also because of variations in classification and bed capacities for certain individual hospitals which served more than one type of patient.

lay employees, according to records in the construction department of the Bureau. A new hospital in the Central Northwest was constructed at a total cost of $2,131,004 in 1926, to accommodate 557 patients, 7 physicians, 63 nurses, and 114 lay employees. There are 16 buildings, and the patients' accommodations include 123 private rooms, 276 beds in semiprivate rooms, and 158 in wards. This ratio of wards to semiprivate and private accommodations is higher than for some of the other institutions under control of the Veterans' Bureau.

The army ranks next to the Veterans' Bureau in number of hospital beds provided, with 106 hospitals and 11,475 beds registered by the American Medical Association in 1928. Most of these hospitals report less than 100 beds, and are located in the various army posts primarily to serve as emergency hospitals. Chronic, tuberculosis, mental, and severe surgical cases are sent to larger hospitals located in the important medical centers. The army controls the three largest general hospitals under federal auspices. They are each of more than 1,000-bed capacity, and are located at San Francisco, Denver, and Washington, D.C. The Denver institution is also used for a number of tuberculosis cases.

Some of the larger army hospitals comprise groups of relatively small buildings rather than the massive structures which prevail in many of the newer private institutions. The quartermaster general of the United States army reported that there were 83 buildings at the San Francisco Hospital, 99 at Walter Reed Hospital in Washington, D.C., and 160 at the Denver institution. Most of the accommodations are in wards with 4 or more beds. The hospitals usually include accommodations for nurses and for civilian employees or enlisted men. The most recently constructed complete hospital on which data were secured was located in the Southwest, with accommodations for 500 patients, 13 physicians, 41 nurses, and 201 lay employees. The hospital comprises 70 separate buildings, and the total investment per patient-bed is something more than $3,400.

Extensive construction is being carried on at some of the

larger hospitals. The Walter Reed Hospital occupies a very desirable land site of 110 acres in the District of Columbia, and the accumulated investment in buildings and equipment since 1906 is approximately $7,000,000, according to detailed records of the quartermaster general's department. The frame buildings are being replaced by new ones of fire-resistant construction. The patient-bed capacity is 1,000, and there are accommodations for 121 nurses and 237 other employees. Other hospitals report lower investments per bed, varying with the extent to which facilities have been modernized.

The navy ranks third, with 8,160 beds, although only 15 navy hospitals were registered by the American Medical Association in 1928.

The United States Public Health Service in its annual report for 1928 lists 24 hospitals, whose total "registered" bed capacity was 3,924. They comprise 22 general hospitals for members of the merchant marine, a tuberculosis hospital with 250 beds in New Mexico, and a leprosarium with a capacity of 425 at Carville, Louisiana. The supervising architect of the Treasury Department reports that the new hospitals which are being constructed represent outlays of from $3,000 to $5,000 per bed, depending on the special conditions affecting the construction. These costs include the values of land, buildings, and equipment for patients, nurses, and professional and lay employees. At Detroit, Michigan, a 141-bed general hospital was recently erected for the United States Public Health Service. Accommodations are provided for 6 patients in private rooms, 5 in semiprivate rooms, and 130 in wards. Accommodations are also available for 19 nurses and attendants. There is but one hospital building, and the cost of construction, not including equipment, was $540,444. The marine hospital at Cleveland accommodates 249 patients and 115 other persons, and was erected in 1929 at a cost of $1,134,097, not including equipment.

The Indian Service in the Department of the Interior controlled in 1928, 80 registered hospitals, with a total bed capacity of 3,137, distributed as follows: 64 general hospitals with re-

ported facilities for 2,121 patients, 1 hospital with 92 beds for nervous and mental patients, 12 tuberculosis hospitals, and 3 general hospitals for inmates or residents of Indian "institutions." A considerable proportion of the so-called Indian hospitals are buildings which were originally constructed for other purposes—that is, for school dormitories, superintendents' quarters, etc.—and, after having served their purpose in such capacities, have been converted to hospital or sanatorium use where the situation on the particular reservation in question has been such as to require it. Many of these buildings are very poorly adapted to hospital use but have had to suffice because of lack or limitation of funds from which more suitable structures could be built. Lately there have been built a number of hospital buildings of small capacity and of simple construction, more adequate for hospital purposes but with limited facilities for diagnosis and treatment.[1]

The Board of Managers of National Homes for Disabled Volunteer Soldiers controls hospitals classified by the American Medical Association as follows: 5 institutional, 3,167 beds; 3 general, 1,798 beds; 1 nervous and mental, 1,092 beds; 1 tuberculosis, 1,701 beds. In 1930 these hospitals were brought under the jurisdiction of the Veterans' Bureau.

Other hospitals controlled by special departments of the government and available for the general use of eligible federal wards and employees are 7 in number, containing 5,122 beds. The outstanding institutions in this group are the St. Elizabeth's Hospital and the Freedman's Hospital in Washington, D.C.,

[1] "Our general hospitals care for all types of illness, including a few cases of tuberculosis. Considerable major surgery is done in a few of them where fairly adequate facilities are available and the physician is qualified for such work. At others a private surgeon may be called in; and at still others, where the facilities are inadequate, major surgical cases are referred to private institutions. During the fiscal year 1929, the annual reports of the several jurisdictions showed 93 hospitals and sanatoria in operation, with a total bed capacity of 3,162. A total of 37,511 patients were treated and 677,261 days of hospital treatment given at a total cost of $1,231,181.83" (letter from E. L. Black, Commissioner of Indian Affairs, dated March 21, 1930).

both of which render annual reports to the Secretary of the Interior. The former institution accommodates 4,100 mental cases, and serves all departments of the government, including the Veterans' Bureau when necessary or appropriate. In 1928 the book value of the land, buildings, and equipment was $5,500,000, or slightly more than $1,300 per available bed, undoubtedly an understatement because of a liberal policy in writing off capital expenditures combined with a change in the general price level. During 1929 additional expenditures for medical and surgical service were authorized at a total cost of $875,000, with no appreciable increase in available beds for patients. The Freedmen's Hospital is a general hospital of 268 beds for negro patients, conducted by a staff of negro physicians and nurses. It serves as a teaching hospital for Howard University Medical School, and accepts both full-pay and free patients from the general public.

STATE HOSPITALS

There were 595 state hospitals registered in 1928, representing a total capital of nearly $800,000,000, as shown in Table XIII. Most of the capital, 83 per cent, is invested in the 223 hospitals for nervous and mental cases, which contain 330,000 beds. The average size of these institutions approaches 1,500 beds, with only 9 reporting capacities of 100 or less and with 147 classified as having more than 1,000 beds. Among the state hospitals for nervous and mental cases, there are included 9 for epileptics and 11 for feeble-minded adults and for backward and mentally deficient children.

The average investment per bed is approximately $2,000, the lowest for any single group of hospitals studied. Many of the hospitals have been constructed at total costs of $1,000 per bed or less, and are housed in frame buildings.

The published reports of 65 nervous and mental hospitals, representing institutions in 17 different states, having a total bed capacity of 102,692, showed a total valuation of $117,013,000 for land, buildings, and equipment of these institutions, an

average investment per bed of $1,139. The 6 New York State hospitals included in the group showed an average investment of $1,696. An eastern state is planning, for one of its nervous and mental institutions, an entirely new set of buildings with a 2,500-bed capacity, at an estimated cost of $7,500,000. This will represent a gross investment of $3,000 per patient bed, a marked increase over the figures which have been reported by the various state boards in different parts of the country. In the writer's opinion, a reasonable valuation which would repre-

TABLE XIII

STATE HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE OF TOTAL		
				Hospitals	Beds	Capital Investment
All types	595	369,759	$793,468	100.0	100.0	100.0
General	51	13,992	$ 51,664	8.6	3.8	6.5
Nervous and mental	223	329,397	660,401	37.5	89.1	83.2
Tuberculosis	60	14,453	49,012	10.1	3.9	6.2
Special	14	1,783	7,056	2.3	0.5	0.9
Institutional	247	10,134	25,335	41.5	2.7	3.2

sent the replacement value for the large nervous and mental hospital beds under state control is $2,000 per bed.

The bed capacity in state nervous and mental hospitals is growing rapidly throughout the country. The increase from 1928 to 1929 was approximately 15,000, although the registration of other hospitals shows almost no net gain in bed capacity, according to the March 29, 1930, issue of the *Journal of the American Medical Association.*

The states have played a small part in providing capital for general hospital care. Of approximately 70 hospitals under state auspices, which were reported to the American Medical Association as "general," 19 were restricted to residents of state institutions, and only 51 offered general medical or surgical

service to the public. The estimated capital investment of thees 51 hospitals is about $52,000,000, or slightly more than $1,000,000 each. They range widely in character and size, and include small infirmaries erected at state colleges; hospitals intended for special groups, such as war veterans, miners, etc.; infirmaries with a high percentage of chronic, incurable, or nervous and mental cases; and teaching hospitals connected with state university medical schools.

The largest state hospital for the use of the general public is the Charity Hospital at New Orleans, with a bed capacity of more than 1,700 patients. The state infirmaries in Massachusetts and Rhode Island accommodate a large number of patients requiring custodial care, with incidental medical and surgical service. The hospitals at the Universities of Iowa and Michigan have effected under special state laws rather complete and detailed arrangements with the cities and counties for the care of patients who are unable to pay for hospitalization. In both of these institutions hospitalization includes medical care by physicians, and the staffs of these institutions include the full-time members of the school faculty. At the Universities of Maryland, Virginia, Indiana, Wisconsin, Minnesota, Oregon, and California, certain local members of the medical profession may hospitalize their private patients in the university hospitals.

The state of Pennsylvania controls 11 general hospitals located at different parts of the state, which resemble in many respects the local community hospitals controlled by private associations or local governments. Pay patients are accepted from the general public, and state support is limited to the deficits incurred from free and part-pay service. The hospital at Connellsville is in a new fire-resistant building, with a bed capacity of 96. The cost of construction was about $450,000. It employs only graduate nurses, and the medical staff is "open."

Of the state hospitals, 42 per cent are limited to the care of attendants at penal, custodial, or educational institutions. This group contains, however, less than 3 per cent of the total beds under state control, and represents but 3 per cent of the capital

investment. Of the 247 "institutional" hospitals, only 14 were registered in 1928 as having bed capacities of more than 100. Many of these hospitals are primarily infirmaries for the temporary bed care of patients, and serve to isolate patients from their fellows rather than to provide complete medical service.

The states had provided, up to 1928, 60 tuberculosis hospitals, with a total bed capacity of 14,453 and a capital investment of $49,012,000. The 60 state tuberculosis hospitals are rather evenly distributed among 37 states throughout the country, there being at least one such hospital in all states in the North and Middle Atlantic sections and in the South except Florida, Tennessee, and Alabama. Connecticut, Massachusetts, Pennsylvania, Maryland, and Virginia have taken a more active part in tuberculosis hospitalization, the total bed capacities for the state tuberculosis hospitals being 876, 1,123, 2,075, 660, and 761, respectively. The following states in the Far West had no state tuberculosis hospitals registered in 1928: Arizona, California, Colorado, Idaho, Nevada, New Mexico, Utah, and Washington. Some of the western states, however, have large numbers of hospital beds available for tuberculosis patients in the so-called "general" hospitals; others contribute to tuberculosis hospitals under independent or local government auspices. In 1929 the California legislature passed a law (Laws of 1929, chap. 429) that each city hospital which establishes a tuberculosis hospital shall receive from the state the sum of $7.00 a week for each person cared for at public expense. The construction of state tuberculosis hospitals is usually financed largely through taxation. Patients are admitted to some state hospitals, however, even if they are able to pay for private hospital care, and many of them contribute to the operating expenses of these hospitals.

The 14 "special" hospitals reported in 1928 represent but a small portion of the capital investment under state auspices, less than 1 per cent. The orthopedic hospitals in Massachusetts, New York, and Minnesota all report more than 200 beds. The cancer hospitals in New York and Massachusetts, the children's hospitals at Indianapolis and in Oregon, and the Illinois Eye,

Ear, Nose and Throat Hospital, stand out as the main institutions of this group. The costs of caring for children admitted to the New York State Orthopedic Hospital are shared by the state and the counties from which the patients are committed.

The state special hospitals are, for the most part, in modern fireproof buildings, and are associated with medical schools as "teaching" hospitals. Most of them have been established within recent years, and in some cases a large number of private cases are admitted for treatment. In 1929 the Pennsylvania legislature voted against a state institution for the study and care of malignant diseases, as did the New Hampshire legislature with regard to a children's hospital at the present state sanatorium. In Texas a law was enacted in 1929 to establish a hospital for cancer and pellagra cases (Laws of 1929, chap. 185). According to action by the Wisconsin legislature (Laws of 1929, chap. 490), there will be established an orthopedic hospital at the University of Wisconsin.

The percentage of patients who pay no hospital fees is very high at some institutions, such as the Charity Hospital at New Orleans, Louisiana. This institution operates on a total budget of approximately $1,000,000 per year. Of this total amount, only $201 was reported as received from patients in 1928. There are 6 very small general hospitals under state control in Mississippi which are intended to be exclusively for free patients. The methods of financing the state general and special hospitals is often a combination of taxation, voluntary contributions, and large bequests. Two of the most important buildings at a midwestern state university have been given as memorials. In one case the entire amount was provided by members of a wealthy family. In the other, voluntary contributions were solicited in commemoration of a famous poet. At the University of Oregon Hospital in Portland, the state, city, and county and private citizens combined to provide the Doernbecker Memorial Hospital for children. The state of Oregon donated the land on which were constructed the Multnomah County Hospital and the Veterans' Bureau hospital at Portland.

Some of the state general hospitals are almost self-supporting, the income from patients being sufficient to recover a high percentage of the total expenditures, excluding interest and depreciation. At a western institution, in a total budget of $464,000 for 1928, more than 80 per cent was received from patients, approximately 4 per cent from endowments, 5 per cent from the local community fund, 8 per cent from miscellaneous sources. The University of Maryland Hospital at Baltimore, with an annual income of $380,000 in 1928, received approximately $280,000 from patients, $30,000 from the community fund and voluntary contributions, and a state subsidy of but $47,000. At the University of Indiana hospitals, expenses of $573,000 in 1928 were met as follows: patients' fees, $276,000; state appropriations, $295,000. In some jurisdictions the counties and municipalities reimburse the state for some of the care to indigent patients; for this reason some of the amounts classified as patients' fees are not paid by the patients, but merely in their behalf.

COUNTY HOSPITALS

The "county" hospitals are an important group, although they exist in fewer numbers than is commonly supposed when the 489 hospitals registered in 1928 are compared with the 3,076 counties in all the states. A study of Table XIV shows that the total capital investment is concentrated largely in general hospitals, with nervous and mental and tuberculosis facilities each representing about half as much capital.

The 221 county general hospitals are relatively small, with an average bed capacity of approximately 110. Fifty-seven reported bed capacities of less than 25 in 1928; only 76 exceeded 100 beds, one of them being the Cook County (Illinois) Hospital previously mentioned.

California leads all states, with 43 county hospitals and 7,679 beds in 1928. There were 10 in Illinois, with 3,923 beds; 7 in Michigan, with 2,722 beds; 13 in New York, with 1,495 beds; and 24 in Indiana, with 817 beds.

The investment per bed for the 221 county general hospitals is approximately $3,590, according to the estimates for the entire group. The writer visited or secured reliable data from thirteen of the larger institutions, ranging in investment per bed from $1,429, for a large hospital with buildings of frame construction in a Pacific Coast city, to a new institution in the South with 107 beds and an investment per bed of $4,204. The mean average for the entire group was $3,342, including hospitals at Portland, Oregon; Los Angeles and Oakland, California; Valhalla, New York; Columbia and Spartanburg, South Carolina;

TABLE XIV

COUNTY HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	489	63,231	$187,260	100.0	100.0	100.0
General	221	24,563	$86,915	45.2	38.8	46.4
Nervous and mental	53	19,513	44,270	10.8	30.9	23.7
Tuberculosis	154	15,023	43,890	31.5	23.8	23.4
Special	15	1,362	5,260	3.1	2.1	2.8
Institutional	46	2,770	6,925	9.4	4.4	3.7

Des Moines, Iowa; Wauwatosa, Wisconsin; Seattle, Washington; and Shelbyville, Indiana.

There were 53 nervous and mental hospitals under county control in 1928. Thirty-three of these were in Wisconsin, and a large portion of the remainder in Pennsylvania. The four states, Wisconsin, Michigan, Pennsylvania, and New Jersey, contain 85 per cent of the beds for nervous and mental cases reported to be under county control. As in the case of the state hospitals, institutions of this type have a high bed capacity and a relatively low investment per bed.

There were 154 county tuberculosis hospitals registered in 1928, with a total estimated capital investment of $44,000,000

and an investment per bed of something less than $3,000. This total does not represent the full extent of tuberculosis facilities, as an increasing number of county general hospitals are establishing beds for tuberculosis patients. Only sixteen of the county hospitals exclusively for tuberculous patients report capacities of more than 200 beds. Some of the county tuberculosis sanatoriums are of modern fireproof construction. The Broadlawns Polk County Hospital at Des Moines, Iowa, was erected in 1928 to accommodate 100 patients and 36 employees. The buildings occupy a desirable location at the edge of the city, and the total cost of buildings and equipment several years ago was approximately $414,000. There were 26 states in which one or more registered county tuberculosis hospitals were located in 1928. Those leading in number of hospitals were as follows: New York, 27; Illinois, 15; Wisconsin, 14; Minnesota, 13; Ohio, 12; California, 11; Michigan, 11.

The methods used by counties in financing capital investment are not uniform, although most of them rely upon taxation exclusively. Some of them accept private patients on a pay basis. A county general hospital in Maryland received $84,000 from patients in 1928, out of total receipts of $95,000; a 200-bed hospital in California received approximately 30 per cent of its total income from patients during a recent fiscal period. Patients at the Los Angeles County Hospital have seldom paid more than 3 per cent of the total operating expenses.

In a few instances counties have co-operated with local nonprofit associations in the construction of hospital plant and equipment, and have actually taken over projects begun by associations which have been unable to complete them. For example, in a community in South Carolina, the citizens constructed a hospital at a cost of $75,000. Forty-five thousand dollars were raised from voluntary contributions and $30,000 from the sale of bonds. The hospital earnings were insufficient to meet the interest on bonds. The county agreed to pay off the indebtedness of the institution, and later the county health officer assumed the position of superintendent of the hospital.

CITY AND COUNTY HOSPITALS

City and county hospitals, operated jointly by these government units, are not an important type from the standpoint of their total number, bed capacity, or capital investment, as may be observed from a study of Table XV. The advantages of such co-operation are so obvious, however, that joint-venture hospitals are increasing in number and bed capacity. In 1928 the most important ones under such auspices were the general hospitals at San Francisco, St. Paul, Denver, and Dallas. During

TABLE XV

CITY AND COUNTY HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	63	7,553	$25,008	100.0	100.0	100.0
General	33	4,946	$17,441	52.4	65.5	69.7
Nervous and mental	2	73	182	3.2	1.0	0.7
Tuberculosis	14	1,612	4,726	22.2	21.3	18.9
Special	9	318	1,149	14.3	4.2	4.6
Institutional	5	604	1,510	7.9	8.0	6.1

1929 the number of city and county hospitals increased from 63 to 81, the increase resulting primarily from the reorganization of hospitals previously under city or county auspices exclusively. The most important change was the Philadelphia Hospital for Mental Diseases, which in 1929 was reported as a city and county hospital.

CITY HOSPITALS

There were 372 hospitals registered as under "city" control in 1928, with a bed capacity of 65,000 and capital investment of something more than 210 millions, as shown in Table XVI.

Sixty-five per cent of the capital investment is in 235 general hospitals, which have an average bed capacity of 160. Most of the general hospitals, 169 of them, report bed capacities of 100

or less. There were 8 city hospitals with more than 1,000 beds each. Thirty-seven of the states contain one or more city hospitals for general medical and surgical care, although but sixteen states contained as many as 5 such hospitals. The most important ones, from the point of view of bed capacity, are the following: New York, 29 hospitals, 10,279 beds; Pennsylvania, 3 hospitals, 5,414 beds; Michigan, 29 hospitals, 3,134 beds; Massachusetts, 15 hospitals, 2,736 beds. The state of California, although a leader among county controlled hospitals, reports

TABLE XVI

CITY HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	372	65,126	$211,089	100.0	100.0	100.0
General	235	37,587	$136,774	63.2	57.7	64.8
Nervous and mental	9	11,567	23,486	2.4	17.8	11.1
Tuberculosis	27	6,857	20,517	7.3	10.5	9.7
Special	85	8,362	28,430	22.8	12.8	13.5
Institutional	16	753	1,882	4.3	1.2	0.9

but two small city general hospitals with combined capacity of 85 beds, exclusively controlled by cities.

Special hospitals rank second among the group controlled by cities with 85 institutions and $28,000,000 of capital investment. Seventy-two of the special hospitals are for the isolation of contagious cases, and contain 7,332 beds. The largest city isolation hospital is at Philadelphia, with 1,200 beds. The Willard Parker Hospital at New York is second, with 610 beds. Most of the other isolation hospitals are small.

There were but 9 city nervous and mental hospitals registered in 1928, with 90 per cent of the beds concentrated in St. Louis, Pittsburgh, Philadelphia, and New York City. The 27 tuberculosis hospitals are limited to eleven states. Seventeen of such

hospitals are in the North and Middle Atlantic section. The largest single hospital is located at Chicago, with 1,200 beds.

Most of the city hospitals are in the eastern part of the country. Of the general hospital group, 58 per cent of the hospital beds are in the North and Middle Atlantic states. A similar condition exists with regard to special hospitals, three-fourths of the beds being in the North and Middle Atlantic states. Six of the 9 nervous and mental hospitals are in the East, 1 is in the state of Louisiana and 2 in the state of Missouri.

Municipalities have relied almost exclusively on taxation for the construction of their hospitals, although some of them have raised funds by encouraging voluntary contributions from large numbers of the community residents. Occasionally a city will receive a large bequest from a wealthy citizen. A certain 100-bed hospital in a middle western city of 100,000 was erected in 1923 largely through the generosity of a citizen who subscribed $300,000. The city paid out $100,000, in addition to providing a land site, and the municipality now owns the hospital in fee simple. Private patients are accepted at the hospital, and the city's part in its present operation is limited to removing an occasional deficit caused by current expenses. A small hospital in Kentucky with 44 beds was provided by private donors. The Major Memorial Hospital, with 40 beds, in Shelbyville, Indiana, was financed in part by the Major family, who provided the hospital grounds and one of the buildings.

A number of municipal hospitals admit paying patients, many of the smaller ones depending almost entirely on patients' contributions to cover their current expenses. The Kentucky hospital just referred to collected in 1928 more than 50 per cent of its income from patients, as did a 40-bed institution in Massachusetts. A 69-bed hospital in New Hampshire received $40,000 from patients in 1928, $30,000 from earnings on endowment, and $26,000 from the municipality. A 120-bed institution in Massachusetts collected approximately 30 per cent of its total operating costs for the year ended March 31, 1929, from patients, the balance being furnished by the municipality. At one hospital

in Tennessee pay-patients are accepted, but they contributed only $29,000 of a total budget of $159,000 for the year 1927. Likewise, the Memphis City Hospital, a 300-bed institution, collected from patients but $20,000 out of a total $375,000 budget in 1928. The Worcester City Hospital, a 400-bed institution, collected in 1928 more than approximately two-thirds of its total expenses from patients, this amount being $183,000. It received $36,000 from endowments, $11,000 from the state, and only $19,000 from the municipality of Worcester. The larger city general hospitals are limited almost exclusively to free patients.

The facts just cited concerning paying patients in city hospitals are not intended to imply that a greater or lesser percentage of hospital service in these institutions should be financed by patient fees. They are inserted merely to illustrate two important principles which arise from the facts. The first is that the dividing line between services to paying and non-paying patients has been broken in certain individual institutions. The second is that patients' fees almost never suffice to recover total expenditures for current expenses, and consequently are not a factor in the provision or replacement of plant and equipment. Government hospitals as a rule are provided by tax funds, and the current services are usually financed from the same source. The admission of paying patients for general medical and surgical care is restricted in scope and is often limited to those areas in which facilities have not been provided by non-government organizations. Government hospitals have assumed the major responsibility for hospitalizing patients who require treatment for relatively long periods of time or who should be isolated in the interests of the public health or social welfare. Most of the government's investments in hospital service have, therefore, been devoted to the care of nervous and mental, tuberculous, and contagious cases. Where general hospitals have been provided, they have usually been intended to serve a group unable to pay for attention in private hospitals. Communities, through their governments, have provided more hospital beds than both

non-profit associations and proprietary associations combined, and their capital investment slightly exceeds the amount controlled by non-profit groups under non-governmental auspices. But, as has just been implied, the heaviest load in hospitalizing patients from the general public who are suffering from acute diseases and conditions has been carried by communities through the medium of non-profit associations and proprietary hospitals.

CHAPTER VII

PRIVATE INVESTMENT ON A NON-PROFIT BASIS

Three classes of non-profit agencies have been active in hospital care: independent associations, churches and religious orders, and fraternal orders. These groups, and their respective rôles in hospitalization, have been described in previous chapters. The following paragraphs will outline the type and scope of the services for which they control capital investment.

INDEPENDENT ASSOCIATIONS

The total investment in the 1,461 hospitals controlled by independent associations is more than $700,000,000, not including the

TABLE XVII

INDEPENDENT HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	1,461	128,059	$706,734	100.0	100.0	100.0
General	1,014	94,700	$585,019	69.4	74.0	82.8
Nervous and mental	49	6,978	20,934	3.4	5.4	3.0
Tuberculosis	73	6,559	20,457	5.0	5.1	2.9
Special	222	16,755	72,656	15.2	13.1	10.3
Institutional	103	3,067	7,668	7.0	2.4	1.0

580 hospitals estimated to be incorporated for profit, and which are discussed in the following chapter as "proprietary" hospitals.

Eighty-three per cent of this capital, or $585,000,000, is invested in general hospitals, as may be observed from the data in Table XVII. This amount exceeds one-third of the total investment in all general hospitals. The 95,000 beds in general

hospitals represent an average investment per bed of slightly more than $6,000 each, ranging from very low to very high amounts. For the 191 hospitals on which accurate capital investment data were secured, the investment per bed ranged from $718 to $16,120. The lowest value applied to a 21-bed hospital of frame construction in South Carolina, with an estimated present value of $15,000; the highest, to a hospital in New York City with 700 beds for adult patients and a total capital investment of nearly $11,000,000.

Table XVIII indicates the mean investment per bed for groups of several sizes on which sufficient data were secured to

TABLE XVIII

INVESTMENT PER BED OF CERTAIN INDEPENDENT GENERAL HOSPITALS CLASSIFIED ACCORDING TO SIZE

SIZE (BED CAPACITIES)	NUMBER OF HOPITALSS STUDIED	INVESTMENT PER BED			
		Mean	High	Low	Value Selected for Estimate
51–100	36	$4,680	$11,750	$1,640	$ 5,000
101–200	68	5,796	15,366	2,409	6,000
201–300	26	6,672	14,210	3,356	7,000
301–500	16	7,790	13,180	5,457	8,000
501–1,000	6	9,594	16,120	6,205	10,000

use statistical methods in establishing average valuations for all similar hospitals. The figures in the right-hand column are the amounts used as investments per bed for all independent general hospitals of these size groups.

It is significant that investment per bed often tends to increase with the bed capacity of a hospital, a tendency which may at first appear to contradict the theory that economic advantages are obtained from large-scale construction. The explanation lies, of course, in the fact that as hospitals grow, they tend to expand and improve their services. Out-patient departments are opened, special diagnostic and therapeutic equipment is installed, nurses' training-schools are established, requiring suit-

able dormitories. Among the larger institutions, lay employees may be housed in hospital buildings, accommodations are often provided for internes, apparatus and quarters for research are made available, and frequently an affiliation with a medical school is effected, necessitating special facilities for the instruction of undergraduate medical students. Other things being equal, the investment per bed should decrease as hospitals grow. But other things do not usually remain equal, and the expansion of bed capacity carries with it an expansion of functions. These new and improved functions require additional capital investment for the services which previously were not offered or which had been purchased from other hospitals or agencies.

Special hospitals represent 15 per cent of the independent association hospitals. Their investments per bed vary with the sizes and the special services for which they are intended. The author visited, or examined data concerning, 38 hospitals and discovered a range of investment per bed from less than $1,000 to more than $14,000. One of them, a mid-western maternity hospital directly connected with a teaching hospital, constructed at a cost of approximately $2,100,000, contains accommodations for 150 mothers and 150 newborn. Two other maternity hospitals, in Boston and New York, showed investments of more than $10,000 per bed for adult patients. In contrast to the hospitals mentioned, a certain maternity hospital represents a capital investment of but $9,140 for its entire capacity of 20 adult beds. It occupies at present a dilapidated frame structure, which is to be abandoned as soon as funds can be secured to construct fireproof quarters. In Greater New York a group of six eye, ear, nose, and throat hospitals showed investments per bed ranging from $1,610 to $8,284, with a median figure of about $4,500. Similar variations appeared for other types of special hospitals. The orthopedic, children's, and cancer hospitals tend to represent high investments per bed. Their diagnostic and therapeutic equipment resemble that of the general hospitals. On the other hand, the homes for "chronics and incurables" and for "convalescence and rest" resemble the simpler accom-

modations of the nervous and mental hospitals, with less tendency toward private rooms and exclusively fireproof construction. Notable exceptions are to be found in each class.

Independent associations have invested but little of their capital in nervous and mental or tuberculosis hospitals. Two hospitals in Pennsylvania for nervous and mental patients report more than 1,000 beds. One is located at Dixmont and is conducted in many respects as a state hospital. The other is a school at Elwyn for backward and mentally deficient children, and is supported jointly by state funds, local government contributions, patients' fees, endowment earnings, and private contributions.

The typical independent hospital is organized as the project of the local community which it serves, with no allegiance to a national or racial group. Independent associations have relied very largely upon voluntary contributions to provide hospital plant and equipment. In most instances the donors have not expected to be repaid or to receive interest on their investments. There are a few outstanding exceptions where the citizens have loaned money to a hospital and where earnings were sufficient to repay the original investment. Approximately twenty years ago on the Pacific Coast a group of citizens advanced money to a non-profit hospital association by personal investment and by their indorsement of notes given to local banks. The hospital has earned annually sufficient amounts to pay interest on borrowings, to liquidate commercial loans, and to repay the citizens who originally advanced the money as stockholders. Surplus earnings beyond this point have been retained by the hospital and used for expansion of its facilities.

The independent association is the logical response of a community to its need for good hospital care. It is not always convenient or desirable to use the existing governmental agencies or to depend upon a church or a religious nursing order to provide hospital facilities. Independent associations usually do not expect to be self-supporting, in the commercial sense of the word. Most of them, in fact, do not even earn income sufficient to cover

operating costs. Only a very few have attempted to render all hospital care absolutely free of charge. Some of them provide a portion of their hospital beds and services at rates well above the presumed costs of production.

Independent associations are in some cases sponsored by wealthy members of the community, and have relied upon large individual contributions for the expansion of their capital investment. A financial history of almost any of the large independent hospitals would be essentially a recital of capital gifts from wealthy citizens or former patients. In 1928 a 400-bed hospital in New York City reported plant and equipment valued at $3,000,000 and an endowment of more than $10,000,000. These funds and others have been supplied almost entirely by large contributions from individual local citizens, both for capital expansion and for current deficits. Since 1916 contributions have been made by one citizen as follows: 1916, $5,500; 1917, $87,000; 1918, $50,000; 1924, $2,714,759; 1925, $855,298; 1926, $784,600; 1927, $135,920, making a total of $4,633,077. Since that time this generous donor has willed a large proportion of his vast estate to the hospital, giving it the largest endowment of any hospital in the country, as well as sufficient funds for a very large medical center in co-operation with a university medical school. Since 1850 there have been more than 100 gifts to this hospital in amounts of not less than $5,000, according to its published annual report for 1927. The average size of gift within this group was approximately $100,000. The total of such gifts exceeded $10,000,000 during this time, not to mention many smaller gifts from less wealthy donors which were not reported in the publication mentioned.

There has been a tendency in recent years for hospitals originally organized as business ventures to reorganize as independent non-profit associations. This has been particularly true of communities in which proprietary hospitals were the only such agencies available, and where the burden of caring for charity patients has been carried by the owners of the hospitals. Communities have demanded that the entire public be served,

even the patients who are unable to pay. This demand has forced certain proprietary hospitals to do one of two things: ask for support from the local community or sell their plant and equipment to a non-profit association. In many cases they have accepted the latter alternative, with the accompanying release of their invested capital and with freedom to pursue their medical practice without administrative responsibilities.

CHURCH HOSPITALS

Churches and religious orders control a very important part of the capital investment in hospitals, particularly those for

TABLE XIX

CHURCH HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	1,056	114,613	$677,137	100.0	100.0	100.0
General	841	100,342	$627,498	79.6	87.6	92.7
Nervous and mental	20	4,123	12,301	1.9	3.6	1.8
Tuberculosis	24	2,872	9,275	2.3	2.5	1.4
Special	95	5,631	23,951	9.0	4.9	3.5
Institutional	76	1,645	4,112	7.2	1.4	0.6

"general" medical and surgical care, as will be seen from a study of Table XIX. There were 1,056 "church" hospitals reported in 1928, with a bed capacity of 115,000 and a total investment of nearly $680,000,000. The average bed capacity of these hospitals is 109, the investment per bed is approximately $6,000, and the investment per hospital is $641,000.

Eighty per cent of the church hospitals are for general care, and 93 per cent of the capital investment is devoted to this service. The average bed capacity for the church general hospitals is 120, as compared with 95 for those under independent auspices.

The investment per bed is in excess of $6,000 for all church

general hospitals, with a wide range from the highest to the lowest. Reliable capital investment data were secured from 84 church general hospitals. The smaller hospitals showed the lower investments per bed, due in part to their location in rural areas, in part to their restriction of functions, and in part to their inadequate equipment. Most of the hospitals recently constructed have required relatively high investments per bed. A Methodist hospital in Arizona, constructed in 1923 with 87 beds and a nurses' home, represented a total capital of $500,000. A 120-bed Catholic hospital, including a nurses' home, constructed in 1928 in a medium-sized Michigan city, represents an investment of $9,200 per bed. A similar one erected in California a few years earlier had cost $6,500 per bed. In no localities does it appear that fireproof hospitals with more than 100 beds completely equipped for general service are being constructed at a lower cost range than $4,500–$6,500 per bed.

Among the larger hospitals, most of them located in large cities, the investments per bed are higher, reaching a maximum of more than $18,000 for a very large hospital in New York City. This hospital is directly connected with a medical school, conducts an extensive out-patient department, carries on medical research, and provides for the general training of internes and graduate physicians. Of the 29 hospitals with more than 200 beds, for which capital investment data were secured, 10 reported investments per bed of $8,000 or more. Only 2 reported investments per bed of less than $4,000. One of these was a hospital in Chicago constructed in 1898, with the majority of its beds located in large wards. Its equipment has been replaced from time to time and is modern. The other, located on the Pacific Coast, is using buildings soon to be replaced by a modern plant, and has no accommodations for nurses or lay employees.

Illinois leads all states in church hospitals for general medical service, with 78 institutions and 10,230 beds. All states report at least 1 general hospital under church auspices. The following have more than 30: New York, 52; Wisconsin, 50; Iowa, 41; Minnesota, 40; Ohio, 37; Kansas, 35; Missouri, 33; California, 31.

There were 95 church special hospitals registered in 1928. Of these, 47 were for maternity cases, 15 were for convalescence and rest, 5 were orthopedic hospitals, 3 were eye, ear, nose, and throat hospitals, and 14 were for chronic and incurable cases. Approximately one-half of the special hospitals under church administration are located in the North and Middle Atlantic states. The total capital investment in special hospitals is but $3\frac{1}{2}$ per cent of the total investment under church control. Nervous and mental hospitals and those for tuberculosis cases represent less than 2 per cent of the total capital investment in church institutions for medical care.

Separate mention must be made of the work of hospitals under the control of Catholic nursing orders. This group controlled 624 of the registered hospitals in 1928, with a total adult bed capacity of 78,981. The average size of these hospitals was 127 beds, in contrast with 83 beds per hospital for other church institutions. An important feature which characterizes the Catholic hospitals is the extent to which members of religious nursing orders participate in the management and operation of the various institutions. According to an informal estimate from the offices of the Catholic Hospital Association, there are at present at least 15,000 Catholic nursing sisters devoting their services, without pay, to the hospitals. Certain Protestant hospitals, notably those under Episcopal, Lutheran, and Methodist auspices, utilize the services of deaconesses; but Protestant churches have in most instances relied upon lay help for the direction of their institutions.

Although church hospitals usually acquire plant and equipment through voluntary contributions, they frequently incur liabilities on a commercial basis to obtain funds for construction. The payment of the indebtedness is then accomplished by securing a few large contributions or by conducting community drives during which the general public makes numerous small gifts.

Some hospitals, particularly those conducted by nursing orders, have been able to liquidate their liabilities through the net income from patients' fees. The commercial value of the

sisters' or deaconess' gratuitous services in these instances may be equivalent to 10 or 20 per cent of the entire annual budget for the hospital. Savings accomplished in this manner make possible the repayment of debts or accumulation of surplus in substantial amounts.

Church hospitals almost invariably serve both paying and free patients. Occasionally earnings are sufficient to recover all expenses, including interest and depreciation. A certain 190-bed hospital in Chicago has for each of the past five years reported a net income of $60,000 or more. The surplus was recently used to expand its facilities, and the additional plant and equipment have increased the annual net income. A large hospital in California is obliged to set aside earnings of $108,000 annually to retire its bonds and meet its current interest requirements. The institution receives but few contributions from the general public and none from the denomination. At present a "drive" for funds to retire the debt is in progress. In a large southern city $500,000 was borrowed in 1927 through a local investment banking company which had financed the bond issue. The bond interest was later defaulted, and suit was instituted by the trustees to foreclose on the property. Another hospital in the same city borrowed $524,000 to expand its facilities, but the bonds were issued as a direct obligation of the entire convention, with more than 25,000 churches contributing.

Some hospitals originally established under religious auspices have been reorganized as independent associations. These institutions, lacking the support of nursing orders under the control of nuns or deaconesses, have found it difficult to render free care to an extent commensurate with their avowed philanthropic objectives. Many such hospitals were originally organized to provide special charity service to members of the denomination, but their program was based on the expectation of financial support from the denomination. This support was provided in the days when only a few hospitals were in existence, for special charity hospitals were then concentrated in the large centers and needy members of the denomination were served at central

points. In recent years, however, larger numbers of other institutions have been organized in the smaller centers under independent auspices, and local communities have taken care of their own poor. Side by side with this movement, the use of church hospitals by the general public has increased, tending to break down the denominational barriers. The church hospitals have accordingly needed the help of the local communities for their financing, and for this reason in some instances have relinquished control and responsibility to independent associations.

FRATERNAL ORDERS

Fraternal hospitals represent a special type of co-operative venture in medical service, deriving their significance from their

TABLE XX

FRATERNAL HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	87	5,298	$20,544	100.0	100.0	100.0
General	34	2,365	$11,821	39.1	44.6	57.5
Nervous and mental						
Tuberculosis	6	657	1,967	6.9	12.4	9.6
Special	16	938	3,411	18.4	17.7	16.6
Institutional	31	1,338	3,345	35.6	25.3	16.3

general policies rather than the scope of their service. The total capital investment is estimated at $20,000,000 for the 87 hospitals registered in 1928 (Table XX). Of this number, 34 are for general medical care and 31 for residents of institutions conducted under fraternal auspices. Only a few of the general hospitals exceed 100 beds in capacity, the two largest being conducted by French and German benevolent societies in San Francisco. Sixteen special hospitals under fraternal auspices were registered in 1928, 13 of them for orthopedic work. The

fraternal hospitals are usually constructed with funds provided by the order, and in some instances medical services are limited to members of the order and their families. On the other hand, certain hospitals have accepted patients from the general public.

SUMMARY

Communities, rather than governments, have assumed the primary responsibility for providing hospital service to those members of the general public requiring medical care for acute diseases and conditions. The communities have approached their objective by organizing independent hospital associations and by supporting hospitals operating under the leadership of churches and religious orders. Although many of the patients of these hospitals pay for the current expenses arising from their care, communities have not relied upon patients' fees to provide the capital investment or to expand and replace plant and equipment. The general public has been relieved of some of its burden by the large financial contributions of wealthy citizens, on the one hand, and the devoted personal services of members of religious nursing orders, on the other. A substantial number of free patients are cared for in non-profit association hospitals, the expenses being met either by additional voluntary contributions or by an allocation of tax funds for this purpose. On the whole, communities, acting through non-government agencies, have limited themselves to the care of acutely ill patients, although some facilities have been made available for those requiring long periods of hospitalization.

CHAPTER VIII

PRIVATE INVESTMENT ON A BUSINESS BASIS

Proprietary hospitals include all those organized on a basis where the group providing financial support or controlling financial policies share in the profits or losses which may accrue from the hospital's activities. Among this group are 1,698 registered hospitals which are under the control of individuals and partnerships, 580 organized by physicians or laymen as business corporations, and 157 hospitals controlled by industrial enterprises primarily for the use of their own employees. It should not be assumed that all proprietary hospitals are actually operated at a net profit to the owners, for many of them are not self-supporting. It is not unusual for industrial hospitals to be supported by the enterprise at little or no cost to the employees. The criterion used in determining the proprietary classification was whether the individual or groups supplying the hospital capital could be benefited financially by the hospital's services.

Although there are more than 2,400 proprietary hospitals among the 6,852 registered by the American Medical Association in 1928, this large group of hospitals represents scarcely more than one-twelfth of the capital investment in the United States. The explanation lies in the fact that proprietary hospitals are very small, averaging scarcely 30 beds in capacity.

INDIVIDUAL AND PARTNERSHIP HOSPITALS

The hospitals controlled by individuals and partnerships are almost equal in number to the government hospitals of all kinds. The total bed capacity is much less, 40,000, as compared with more than 560,000 for government institutions. The average bed capacity of the hospitals under individual or partnership auspices is 23, and the investment per hospital approximately $65,000.

As shown in Table XXI, three-fourths of these hospitals (1,272) are for general medical and surgical care, and represent 71 per cent of the relatively small amount of total capital. Only 7 of this number contain more than 100 beds. The average investment per bed is slightly under $3,000. Some of the hospital buildings are poorly equipped and of frame construction. Many of them are, in effect, annexes to the offices of private practitioners. Of 6 such hospitals visited, none were of fireproof construction, and 4 were housed in former private residences. Some of these general hospitals under individual or partnership

TABLE XXI

INDIVIDUAL AND PARTNERSHIP HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	1,698	39,333	$115,817	100.0	100.0	100.0
General	1,272	27,972	$81,642	74.9	71.1	70.5
Nervous and mental	131	4,064	12,192	7.7	10.3	10.5
Tuberculosis	82	2,818	7,647	4.8	7.2	6.6
Special	213	4,479	14,336	12.6	11.4	12.4
Institutional						

auspices, however, are known to have modern plant and equipment. Capital investment data were procured from 21 hospitals with an average bed capacity of 75 and an average investment per bed of $3,312.

There were 131 nervous and mental hospitals controlled by individuals and partnerships, and 82 for tuberculosis cases. Of the latter group, most of the institutions are located in Arizona, California, and North Carolina. Many of the hospitals in Arizona are essentially boarding-houses, operated by trained or practical nurses, and without special facilities for medical treatment. Of 8 such hospitals in one city in Arizona, only 1 was under the immediate direction of a physician, and only 2

provided medical service as a regular part of their treatment. In none of these hospitals did the investment per bed exceed $2,000, and for several it was much lower.

The 213 special hospitals include 48 for eye, ear, nose, and throat service and 53 for maternity cases. The total investment for all special hospitals is about one-eighth of the total capital under the control of individuals and partnerships.

Most of the hospitals under individual and partnership control are located in the West and South, the following states reporting 50 or more: California, 147; Texas, 115; New York, 91; Minnesota, 78; Iowa, 66; Illinois, 63; Pennsylvania, 59; North Carolina, 58; Ohio, 56; Massachusetts, 55; Oklahoma, 52; Nebraska, 51.

INCORPORATED PROPRIETARY HOSPITALS

The American Medical Association classifies all incorporated hospitals not under church, fraternal, governmental, or industrial auspices as "independent." The American College of Surgeons, however, in its annual *Hospital Standardization Report*, uses the term "private" for all hospitals reported to them as being incorporated for profit rather than as charitable agencies. The published classification of the College of Surgeons hospitals applies, of course, only to hospitals which are approved by them.

To estimate the number of incorporated proprietary hospitals, tabulation was made of the hospitals and bed capacities of the 2,041 institutions listed as "independent" by the American Medical Association, and these data distributed according to types of medical service and registered bed capacity. There were 778 of these "independent" hospitals for which the author had secured sufficient data to classify the nature of their organization. Each was classified, as "private" or "non-profit," and the bed capacities accumulated in the respective categories. The classification for these 778 hospitals was then compared with the type of "control" under which these same hospitals were listed by the American College of Surgeons, in so far as they had been "approved."

The American College of Surgeons in 1929 reported 661 approved independent hospitals, of which 129 were classified as private. The combined information from data assembled for this study and from the 1929 report of the American College of Surgeons provided a basis for classifying 1,139 independent hospitals with a combined bed capacity of 115,805. Of this group, 331 were "private" corporations and 808 organized as not for profit.

It was estimated from these data that there would be at least 250 proprietary hospitals among the 902 upon which data had not been secured, and this amount was used for addition to the

TABLE XXII

INCORPORATED PROPRIETARY HOSPITALS "REGISTERED" IN 1928: NUMBER, BED CAPACITY, AND CAPITAL INVESTMENT

TYPE OF SERVICE	NUMBER OF HOSPITALS	NUMBER OF BEDS	CAPITAL INVESTMENT (THOUSANDS)	PERCENTAGE		
				Hospitals	Beds	Capital Investment
All types	580	31,150	$128,227	100.0	100.0	100.0
General	448	23,150	$102,027	77.3	74.3	79.6
Nervous and mental	46	2,550	7,650	7.9	8.2	6.0
Tuberculosis	40	2,800	8,850	6.9	9.0	6.9
Special	46	2,650	9,700	7.9	8.5	7.5
Institutional	.....	.....	.....	.....	.....	.....

331 known to fall in this category, with a "round number" estimate being established as 580. The numbers applicable to the various types of medical service are shown in Table XXII.

The estimate made in the foregoing manner is, in the writer's opinion, a conservative one, as may be indicated from the following facts. Complete data were secured on all but 10 independent general hospitals with more than 100 beds; these 10 were all assumed to be non-profit. For groups of lower bed capacity, the proprietary institutions were in each case assumed to be a lower percentage of all hospitals than prevailed for the private hospitals in the total on which financial data were secured.

Eighty per cent of the capital is invested in general hospitals. The investment per bed for the entire group is slightly more than $4,000. Of 18 separate hospitals of this class for which capital investment data were procured, the investment per bed varied from $1,800 to nearly $7,000. The average for the entire group was $4,226. The largest hospital of this group is a well-known sanitarium in the Middle West, which combines medical care by physicians with its hospital service.

The West Suburban Hospital at Oak Park, Illinois, which contained 327 adult beds in 1928, is the largest incorporated proprietary hospital intended primarily for acute diseases and conditions. The outstanding institutions of this type on the Pacific Coast are the St. Francis Hospital at San Francisco and the Virginia Mason Hospital at Seattle. Each of these institutions is owned by members of the attending staff and the general public. The Cleveland Clinic Hospital, with a capacity of approximately 300 beds, and the Doctors' Hospital of New York City, are among the best-known hospitals of this type east of the Mississippi River Valley. Most of the incorporated proprietary hospitals are located in the western states.

The larger incorporated proprietary hospitals are of modern fireproof construction, but in most instances do not maintain out-patient service and are not utilized as "teaching" hospitals. A hospital was recently constructed in Chicago with accommodations for 140 adult patients, with no rooms containing more than two beds. The building is fireproof, but there are no nurses' quarters. The capital investment, at the time of construction in 1928, was $543,000, divided as follows: land, $41,000; building, $422,000; equipment, $80,000. In Ohio, a hospital with 170 beds has been constructed at a total cost of $4,000 per bed, not including the land site.

Incorporated proprietary hospitals have invariably secured their funds by the sale of stock or bonds, and have relied upon net earnings as their sole source of income. Free patients are not knowingly admitted to the hospital, although emergency cases are always given first-aid treatment. In no cases known

to the author do such hospitals receive regular community support for free services rendered, although a group of proprietary hospitals in Chicago has recently instituted an organization for this purpose, known as the "South Side Hospitals' Foundation." The foundation is to collect and hold in trust certain funds, the income from which is to be used for reimbursing member hospitals for free service, rendered to members of the respective communities. The control of the funds is to be kept free of the domination of any single hospital, and payments are to be made only on presentation of evidence that hospitalized patients are not able to pay the entire costs of their care.

The nervous and mental, tuberculosis, and special hospitals are not numerous and do not represent a large total capital investment, when compared with the activities of governments or non-profit associations. The two largest tuberculosis sanatoria in this group are located in Arizona and Colorado. Most of the nervous and mental and special hospitals are concentrated in the North and Middle Atlantic states.

INDUSTRIAL HOSPITALS

There were 157 hospitals registered as under "industrial" control in 1928. Most of this group are emergency hospitals for first-aid or temporary treatment of injured employees of a single firm, half of them reporting bed capacities of 25 or less, and only 12 having more than 100 beds. All of these hospitals have been classified as for "general" care, although one small western hospital is presumably limited to tuberculosis cases.

Among the larger institutions registered as industrial hospitals, the majority are equipped to render complete medical and surgical care, and are owned and operated for railroad employees, at strategic points along the systems. The Missouri Pacific owns hospitals in St. Louis and Little Rock, the Illinois Central in Chicago and other points, the Northern Pacific in St. Paul and in Glendive and Missoula, Montana. The Southern Pacific controls hospitals in Houston and San Francisco.

Capital investment in industrial hospitals is often furnished

by the corporation whose employees are served, and current expenses met by a uniform or regular deduction from salaries of all employees, which insures medical and hospital care for them. Hospital associations are in some cases separately incorporated, and pay an annual rental to the company for the use of plant and equipment. Such an arrangement is effected by "The Hospital Association of the Southern Pacific Lines in Texas and Louisiana." The Illinois Central hospital in Chicago accepts patients from the general public, and the facilities are used freely by physicians in the city who serve as its attending staff.

The plant and equipment of the industrial hospitals are usually as modern and complete as that for other hospitals of similar size and location. None of them is closely affiliated with a medical school, but most of the larger ones maintain an outpatient service for their own employees. The total capital investment is estimated at $25,124,000 for the 157 hospitals and 7,047 beds. This represents an investment per bed of approximately $3,500. The printed annual report of the Missouri Pacific Hospital Association places the value of a new 300-bed hospital in St. Louis at $1,093,395, including the land site and all equipment, but not a nurses' home. The investment of a 200-bed hospital in a mid-western city, including a nurses' home, is approximately $1,200,000. Data secured from 7 industrial hospitals for railroad employees, with an average capacity of 148 beds, show an investment per bed of $3,840.

The estimated capital investment in hospitals controlled by industrial enterprises does not, of course, indicate the extent to which hospital care is provided employees. Many enterprises have special arrangements with community hospitals or certain "special" hospitals for the care of their employees. For example, the Missouri Pacific Hospital Association hospitalizes some tuberculosis patients at the National Methodist Episcopal Sanatorium at Colorado Springs. The Endicott-Johnson corporation, in addition to owning and operating the 30-bed Clinton Street Hospital at Binghamton, New York, hospitalizes a large number of patients at full rates in the Ideal Hospital in Endicott, and in the Charles S. Wilson Memorial Hospital in Johnson City.

Both of these latter hospitals depend upon payments by the Endicott-Johnson Company for a large share of their current income; moreover, stockholders in the manufacturing plant were the chief contributors to the building programs of these hospitals.

Some hospitals have made a specialty of serving industrial enterprises, particularly where the service can be linked with general medical care for ambulatory patients and conducted according to terms and rates based upon workmen's compensation laws. A hospital in Los Angeles has for ten years accepted industrial-compensation cases exclusively, and developed an extensive in-patient and out-patient service in the community. The facilities are owned by an individual physician, but employees are cared for according to terms of the workmen's compensation laws. The services of this hospital and clinic have recently been extended to the general public.

SUMMARY

Certain general observations may be drawn from the facts presented in this chapter. The three classes of proprietary hospitals are fundamentally similar in their fiscal policies and in the fact that each serves a group of patients who are homogeneous from an economic point of view. The hospitals controlled by individuals and partnerships, as well as those which are incorporated, are intended for patients who can and normally do pay for the complete costs of their hospital care. Rates are established at levels sufficient to recover capital and current expenditures, and the scope of the services is limited to a relatively small group of patients whose income and financial status reach certain standards. For, although these patients are different in their individual economic conditions, they are similar in that all are able to meet certain minimum expenditures.

Not all proprietary hospitals are profitable, and some are avowedly operated on bases which barely make them self-supporting. But in these cases the physician owners have an opportunity to collect as medical or surgical fees to the extent of the amounts remitted in the reduction of hospital rates. Inci-

dentally, this policy, which is sometimes adopted by the owners of proprietary hospitals, shows clearly the economic interdependence of all medical services and illustrates the fact that hospitalization is regarded by some physicians as essentially an adjunct of their professional services.

Industrial hospitals also serve patients of a uniform and normally self-supporting economic level. None of the patients are public charges, for by definition an industrial hospital is intended for employed persons (and possibly their families). Usually the operating costs are met through current deductions from salaries; so, although individual patients may receive more hospital service than their contributions would otherwise provide, the patients as a group are self-supporting with regard to hospital service. Frequently patients are not required to contribute amounts sufficient to recover fixed charges, for capital investment is usually provided by the enterprise as a whole. But even here the underlying motive on the part of the management must be regarded as the preservation and maintenance of the working force rather than a mere charitable impulse. The industrial enterprise has a financial interest in the health of its workers, and its capital investment in a hospital is often necessary to safeguard its previous investment in the knowledge and skill of the personnel.

Most proprietary hospitals are small, with proportionately limited capital investments for each. This fact arises from two complementary conditions in medical service. First, the necessary capital for a large hospital is usually beyond the resources of a small group, and the financial history of hospitals has not been such as to encourage outside investors to purchase hospital securities. Second, the extensive facilities are not required for those patients in a community who are prepared to pay the complete costs of their hospitalization. Proprietary hospitals were among the first types to enter the field of general medical and surgical care for the well-to-do, but their facilities have not grown in proportion to the general expansion of hospital service in the United States.

CHAPTER IX

AMOUNT AND DISTRIBUTION OF ENDOWMENT FUNDS

The present chapter turns from the hospital capital as represented by plant and equipment to that invested in assets, only the income of which is used for the current expenses of the hospital. These assets include both real estate and corporate securities, and are usually classified under the category of endowments. Some attention will also be given to fixed liabilities, which represent in one sense of the term the reverse of endowment assets. They may, in fact, be regarded as negative endowments, requiring the expenditures of funds rather than providing current funds for hospital needs. Both endowment assets and fixed liabilities, when viewed from the standpoint of total hospital service in the United States, play less important rôles in hospital finances than is commonly supposed.

To understand the relationship of endowment to capital investment and operating costs of hospitals, an appropriate index or unit for measuring hospital endowment must be selected. When this unit is chosen, it will be possible to evaluate the total endowment capital available for hospital services in the United States. It will be of interest to note the distribution of these assets with respect to types of control, size of hospitals, and their geographic concentration.

THE INDEX OF ENDOWMENT CAPITAL

Endowment capital serves hospitals by providing current funds for the care of patients. The unit of endowment capital, therefore, which most clearly measures its economic importance, is an individual patient for whom continuous care is furnished. Inasmuch as the care of a hospital patient typically involves the use of a "bed," endowment capital may be expressed in

terms of the number of fully "endowed beds" which it represents. It may be assumed that there will be required for the maintenance of an occupied hospital an annual expenditure not greatly less than $1,500 per bed. This represents a daily per capita cost of but $4.10; certainly a very conservative figure for general hospitals and much lower than actually obtains for the group of hospitals controlling the major portion of endowment capital. Using $1,500 as the annual maintenance cost of an occupied bed, and an annual interest rate of 5 per cent for endowment capital, it would require $30,000 to fully endow a hospital bed. An appropriate endowment per bed, therefore, would be from five to six times the typical investment in plant and equipment.

THE TOTAL HOSPITAL ENDOWMENT

To what extent, using the index just established, can it be said that American hospitals are endowed? How many beds

TABLE XXIII

ESTIMATED ENDOWMENT CAPITAL OF THE HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION IN 1928

Control	Endowment Capital	Total Hospital Beds	"Fully Endowed" Beds
Governmental	$ 15,000,000	567,434	500
Non-profit associations	419,000,000	247,970	13,967
Proprietary	3,000,000	77,530	100
Total	$437,000,000	892,934	14,567

can be supported by existing endowment capital? The answers will be a surprise to those who have assumed hospitals in the United States to be richly endowed. The author estimates the total endowment capital to be approximately $437,000,000, distributed among hospitals of different types of control, as shown in Table XXIII. This total is sufficient to fully endow 14,567 hospital beds at the rate of $4.10 per day ($1,500 per year), a number equal to but 1.5 per cent of the beds registered in 1928. This number of beds is a very meager quantity, when compared with the 567,000 beds in governmental hospitals which are sup-

ported almost exclusively by tax funds.[1] Undoubtedly, $900,000,000 is a conservative estimate of the current expenditures for hospitals of all types, involving approximately 900,000 beds. This sum is more than twice the entire capital now available for endowing hospital service. If all existing hospital beds were to be endowed with but $1,000 per year income each, $18,000,000,000 of income-producing endowment capital would be required. The present endowment capital may be estimated to provide $22,000,000 annually, an amount equal to about $25 per bed per year, or 8 cents per bed-day of care, in case facilities were occupied to 80 per cent of capacity.

For purposes of the present study, no hospitals have been classified as "endowed" which control "investments" of less than $5,000 in 1928, nor have any funds been considered as endowment capital when the principal is controlled by an organization other than the hospital. Practically all of the endowment capital (95 per cent) is under the control of hospitals of non-profit associations. This condition is explained by the avowed purpose of these institutions, namely, to provide hospital care for patients who can pay only in part for the services they receive. As a result, endowment capital has, almost without exception, been placed under the control of these hospitals.

The estimate of total endowment is based upon data concerning 866 independent and church hospitals and 214 governmental hospitals. The method of using these data in establishing the estimate is discussed later in the chapter as one phase of the distribution of endowment capital.

ENDOWMENT IN GOVERNMENTAL AND PROPRIETARY HOSPITALS

Government hospitals have not been the recipients of much capital for investment in endowment assets. An estimate of

[1] This comparison is not entirely a fair one, for the daily per capita cost in governmental hospitals is less than $4.10, because of the high percentage of mental cases who receive care which is essentially custodial rather than medical. Nevertheless, the comparison would be significant even if it could be shown that existing endowment capital were sufficient to "endow" twice as many beds as were estimated above.

$15,000,000 is presented, based upon the examination of the records of 214 hospitals, of which 10 were found to have endowment assets available for hospital care. In the writer's opinion, this estimate is a liberal one. No federal hospitals are known to be the recipients of endowment income, although a few of them receive occasional grants from patriotic societies for the beautification of grounds or for special conveniences to the patients.

The state hospitals for the inmates of penal and custodial institutions and for nervous and mental and tuberculosis patients are not known to control endowment capital.

The state hospitals for general medical and surgical care are endowed to a limited extent. Hospitals connected with state university medical schools are in some cases endowed with respect to education and research, but endowment capital to support hospital care is usually limited to out-patient services and the study of bed cases of special clinical value. The following hospitals in their annual reports for 1928 indicate endowment capital under their control: University of Pennsylvania, approximately $3,000,000; State University of California, $300,000. The Charity Hospital at New Orleans reported interest on endowment capital of approximately $30,000 in 1928.

Most of the local government hospitals are exclusively tax supported, although there are a few notable exceptions where support by the county or city is supplemented by voluntary contributions and the earnings of endowment capital. One "city" hospital in Massachusetts reports endowment capital of over $600,000, another an amount in excess of $400,000. A New Hampshire hospital controls more than $600,000, and a county hospital in New York State has an endowment of nearly $1,000,000. A city hospital in Texas recently received, under the will of a local citizen, certain land and other assets estimated to be worth more than $6,000,000.

The author learned of but one privately controlled hospital with an endowment for the care of patients. In this case former patients of a hospital for mental care had given sums to aid in financing services for patients unable to pay the regular fees.

The hospital is a small one, ordinarily limited to well-to-do patients. The figure of $3,000,000 for all proprietary hospitals is, in the writer's opinion, the maximum amount which would be found to exist if data for the 2,435 hospitals were obtained.

A proprietary hospital in Chicago has accumulated approximately $100,000 excess cash, which is temporarily invested in corporate securities. It will be used shortly to finance the erection of a nurses' home. The Mayo Clinic at Rochester, Minnesota, has provided a large fund for promoting medical research and education, but none of the income is intended for the hospitalization of patients cared for in the local hospitals. Industrial

TABLE XXIV

ENDOWMENT CAPITAL IN NON-PROFIT ASSOCIATION HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION IN 1928

CONTROL	ALL HOSPITALS		HOSPITALS WITH MORE THAN $5,000 ENDOWMENT CAPITAL		ENDOWMENT CAPITAL (THOUSANDS)	FULLY ENDOWED BEDS
	Number	Bed Capacity	Number	Bed Capacity		
Independent	1,461	128,059	710	88,000	$306,800	10,227
Church and fraternal	1,143	119,911	350	46,200	112,200	3,740
Total	2,604	247,970	1,060	134,200	$419,000	13,967

hospitals, of course, provide free care extensively, but the financing is not dependent upon the earnings of endowment assets.

ENDOWMENT OF NON-PROFIT ASSOCIATION HOSPITALS

It was indicated previously, and shown in Table XXIII, that most of the endowment capital, $419,000,000, sufficient to endow 13,967 beds, is controlled by non-profit association hospitals. But this total is not equally distributed among the hospitals and beds within this group. Table XXIV shows that only 1,060 of the 2,604 non-profit association hospitals are estimated to control endowment of more than $5,000 per institution. These hospitals, as a study of the table will reveal, are

the larger ones, and contain more than half of the registered bed capacity. Approximately 60 per cent of the non-profit association hospitals have no endowment capital, according to the definition herein used. The total endowment capital is sufficient to fully endow approximately 5.5 per cent of all beds under non-profit auspices, or 11 per cent of the beds in those institutions which actually receive the income. The percentage of endowed hospitals is greater for the independent association group. Although this group exceeds the church and fraternal hospitals by less than 10 per cent in bed capacity, it controls nearly three times the amount of endowment capital.

Church hospitals, particularly those administered by religious nursing orders, often receive substantial amounts of free services from members of the denomination. These services have the same financial effect as current income from endowments, as far as balancing the cash budgets are concerned. For this reason a mere summation of reported endowment capital values does not give the complete picture of the income of church hospitals during a fiscal period. In the same general way, the finances of fraternal hospitals are influenced by regular receipts of voluntary contributions, often as part of fraternal membership dues. In some instances these dues cover the entire costs of the hospital service, but usually only the estimated expenses of caring for members of the order.

CONCENTRATION OF ENDOWMENT CAPITAL IN INDIVIDUAL HOSPITALS

The endowment capital controlled by the 1,060 hospitals previously mentioned is distributed very unevenly. Some hospitals control very large endowments, relative to their bed capacities; others receive amounts so small as to be almost negligible. A certain hospital in New York reported to the United Hospital Fund in 1928 an endowment of more than $12,000,000 for its 300 adult-patient beds, whereas one in California of the same size possessed but $6,000 endowment capital in 1928. Both of these institutions are "endowed" hospitals, yet endowment

earnings exert entirely different influences in establishing their respective financial policies.

The extent to which hospital capital is concentrated, even among institutions in the same city, may be illustrated by the facts concerning the hospitals which receive aid from the United Hospital Fund of New York City. Forty-eight of the 57 hospitals in this group reported endowments in 1928, distributed as follows in terms of amount per institution.

Endowment per Hospital	Number of Hospitals
Under $10,000	2
$ 10,000–$ 49,000	3
$ 50,000–$ 99,000	4
$100,000–$199,000	5
$200,000–$499,000	9
$500,000–$999,000	8
$1,000,000 or more	17
	48

The total endowment of the 48 hospitals is $78,000,000, an average endowment per hospital of $1,600,000. Most of this capital is concentrated in the 17 hospitals whose endowment is more than $1,000,000. These 17 hospitals control $68,000,000, an average of $4,000,000 per hospital. The average bed capacity of the hospitals with $1,000,000 or more endowment capital is 379, which indicates an endowment per bed of something more than $10,000. Even among this group of richly endowed institutions, the endowment earnings would not suffice to support more than one-third of the available beds.

A similar condition obtained among 206 non-government hospitals in the state of New York, which received aid for free work from the State Board of Charities in 1927. These hospitals reported total "investments" (including cash) of approximately $59,000,000, this amount being controlled by 160 of the reporting hospitals. Eleven of the 160 hospitals reported less than $5,000 each as investments. Thirteen reported $1,000,000 or more each. The total investments of these 13 hospitals amount-

ed to approximately $37,000,000, or 62 per cent of the total reported by the 160 institutions.

Certain tendencies may be recognized from a study of the endowment capital reported by 548 non-profit institutions, which were among the 866 previously mentioned. This group of 866 hospitals, though but one-third of the total hospitals in the entire group, includes more than half of the non-profit association hospitals which are classified as endowed. The 866 hospitals do not represent a distribution according to geography or bed capacity which is typical of the country at large. They include a very great predominance of hospitals in the North and

TABLE XXV

ENDOWMENT CAPITAL OF 548 NON-PROFIT ASSOCIATION HOSPITALS, BY GEOGRAPHICAL AREAS

Geographical Area	Hospitals	Beds	Endowment
North and Middle Atlantic	416	61,669	$217,692,884
South and South Atlantic	38	3,153	6,590,604
Central West	68	14,023	43,814,602
Central Northwest	13	1,991	5,426,535
Far West	13	2,454	4,305,554
Total	548	83,290	$277,830,179

Middle Atlantic states, and but few of the many small hospitals throughout the country. This condition results in part from the fact that adequate data were available concerning a high percentage of the non-profit association hospitals in Pennsylvania, New York, and Massachusetts. It results more directly, however, from the fact that a greater percentage of the hospitals in the North and Middle Atlantic states are endowed than are those in other parts of the United States. The 548 hospitals are almost all large.

GEOGRAPHICAL DISTRIBUTION OF HOSPITAL ENDOWMENT

The majority of the hospital endowment capital is controlled by hospitals in the North and Middle Atlantic states. The data presented in Table XXV were secured from hospitals whose

financial reports for 1928 indicated "investments" of more than $5,000. Of this group, 416 were located in the North and Middle Atlantic states, 38 in the South and South Atlantic, 68 in the Central West, 13 in the Central Northwest, 13 in the Far West. Whereas most eastern non-profit hospitals have some endowment, such capital is but seldom owned by hospitals in other portions of the United States. Of 45 non-profit hospitals west of the Mississippi, personally visited, only 10 reported any endowment; all of them were institutions much larger than the

TABLE XXVI

ENDOWMENT CAPITAL OF CERTAIN NON-PROFIT ASSOCIATION HOSPITALS, BY SIZE OF HOSPITALS

Size (Bed Capacity)	Number of Hospitals Studied	Number of "Endowed" Hospitals among Those Studied	Endowment Capital Controlled by "Endowed" Hospitals	Number of "Fully Endowed" Beds in "Endowed" Hospitals
25 and under....	50	26	$ 2,802,108	93
26–50.....	124	73	8,903,498	297
51–100.....	260	146	27,718,011	924
101–200.....	249	168	68,002,157	2,267
201–300.....	115	81	61,142,237	2,038
301–500.....	51	39	56,903,707	1,897
Over 500.....	17	15	52,358,461	1,745
Total.....	866	548	$277,830,179	9,261

average in their respective localities. Eight were general hospitals located in large cities; 2 were for tuberculosis care and were controlled and supported by racial and religious groups. On the basis of the geographical distribution of the endowment, which the author believes to be fairly representative of the entire country, the distribution of the total endowment capital would be somewhat as follows: North and Middle Atlantic, 70 per cent; South and South Atlantic, 5 per cent; Central West, 15 per cent; Central Northwest, 5 per cent; Far West, 5 per cent.

Table XXVI shows the distribution of the endowment capital among the 866 hospitals for which financial data were secured.

As mentioned previously, 548 of this total number were known to have endowment capital of more than $5,000. A study of the table reveals that among the 866 hospitals studied there was included an unduly high percentage of large institutions. Moreover, the 548 endowed hospitals among this group of 866 represent a concentration of endowment capital not typical of the entire United States. The number of endowed hospitals, particularly in the group with 100 beds or less, cannot be accepted as representative of the hospitals of this size throughout the coun-

TABLE XXVII

ESTIMATED ENDOWMENT CAPITAL OF 2,604 NON-PROFIT ASSOCIATION HOSPITALS "REGISTERED" IN 1928, BY SIZE OF HOSPITALS

Size (Bed Capacity)	Number of Registered Hospitals	Estimated Number of "Endowed" Hospitals	Total Estimated Endowment	Number "Fully Endowed" Beds in "Endowed" Hospitals
25 and under	515	90	$ 6,000,000	200
26–50	599	210	20,100,000	670
51–100	705	311	61,600,000	2,053
101–200	497	270	98,500,000	3,283
201–300	186	106	93,000,000	3,100
301–500	79	54	77,800,000	2,593
Over 500	23	19	62,000,000	2,067
Total	2,604	1,060	$419,000,000	13,966

try. Nevertheless, the figures relating to the 548 endowed institutions are important in themselves and indicate certain tendencies. In the first place the percentage of endowed hospitals is much higher among the institutions with the highest bed capacities. The ratio increases directly with the range of bed capacity for each group. The endowment capital in the 548 hospitals is sufficient to endow approximately 9,000 beds. Of this total, the fully endowed beds are concentrated markedly in the larger hospitals, nearly 3,800 such beds being provided in the 54 hospitals with more than 300-bed capacities.

Table XXVII was prepared from the data concerning the distribution of hospital capital in the 866 institutions, with regard

to bed capacity, geographical location, and control, and with regard to generally known facts concerning the financial policies of the various groups of non-profit association hospitals throughout the United States. This table indicates a still more pronounced concentration of hospital endowment among the larger institutions, because of the inclusion of many small hospitals estimated to be unendowed.

HOSPITALS WITH LARGE ENDOWMENTS

Table XXVIII shows the distribution of the endowment capital among the 548 hospitals previously mentioned, classified

TABLE XXVIII

ENDOWMENT CAPITAL OF 548 "ENDOWED" NON-PROFIT ASSOCIATION HOSPITALS, BY ENDOWMENT PER HOSPITAL

Amount of Endowment Capital per Hospital	Number of "Endowed" Hospitals	Amount of Endowment	Average Endowment per Hospital	Total Fully "Endowed" Beds
$3,000,000 and over	13	$ 81,419,322	$6,263,025	2,714
$2,000,000 under $3,000,000	18	44,523,799	2,473,544	1,484
$1,000,000 under $2,000,000	36	49,457,474	1,373,819	1,649
$ 500,000 under $1,000,000	58	39,014,915	672,671	1,300
Under $500,000	423	63,414,669	149,916	2,114
Total	548	$277,830,179	$ 506,989	9,261

according to the amounts controlled by individual institutions. There appears a marked concentration of the total endowment assets among a few hospitals, a condition which characterizes hospital service throughout the country. There are but 13 hospitals in this group which control endowment capital of $3,000,000 or more each. Their combined endowment capital investment exceeds the total for the 423 with less than $500,000 each. The relatively few heavily endowed hospitals control the majority of the hospital endowment. Those with $3,000,000 or over contain more than 200 fully endowed beds per hospital, as may be determined from the figures in the second and fifth columns. Those with less than $500,000 can support an average of five beds from their endowment income.

Two facts of interest which do not appear from the data in Table XXVIII should be mentioned with respect to the endowment capital of these 548 hospitals. The first is that of the 31 hospitals controlling $2,000,000 for endowment capital, 16 are affiliated closely with medical schools as teaching hospitals. In view of the fact that there are less than 200 hospitals which have direct affiliation with medical schools, this concentration is significant of the extent to which endowment is intended to aid medical education and research as well as the care of patients. A second important fact is that of the 125 hospitals reporting $500,000 or more endowment, 61 are located in the four cities, New York, Boston, Philadelphia, and Chicago. These 61 institutions control more than one-half of all the endowment reported by the 548 hospitals.

FIXED LIABILITIES

Previous discussion has assumed that the provision of capital for hospitals could be classified as either on a non-profit or on a business basis. Among hospitals securing funds on the first basis are those controlled by governmental units, relying upon taxation to provide funds for hospital construction or debt retirement, and by non-profit associations, depending primarily upon voluntary contributions. In the second group are the proprietary hospitals, for which incurrence of liabilities or investments by proprietors supply the resources. For the governmental and proprietary hospitals, the incurrence of liabilities may be regarded merely as a convenient method of financing, not different in principle from the levy of taxes on the one hand or the sale of stock on the other. In the former case the retirement of the debt is ultimately effected by taxation, in the latter by the earnings of the hospital or by additional investment by proprietors.

For non-profit association hospitals, however, the incurrence of fixed liabilities has a special significance. It represents the introduction of business or commercial interests into the policies of institutions considered primarily as non-commercial enter-

prises. Voluntary contributors to hospitals do not expect to receive earnings on this money or ultimate repayment; but it is not so with those who hold hospital mortgages or bonds. These groups advance funds on a strictly business basis, even though the hospital may pay the annual interest and ultimately retire the debt through voluntary contributions.

It is estimated that the average indebtedness per bed in non-profit association hospitals is approximately $500. This quantity, multiplied by the number of beds under non-profit association control, gives a figure of approximately $125,000,000. Although this amount is large as a total sum, it is less than 10 per cent of the total capital represented by these institutions. The estimate was based on a sample group of independent association and church hospitals of the general and special type. The sample included 32 general hospitals under church control and 147 independent hospitals, within the size ranges of 51–100 beds and 201–300 beds. Among the 32 church hospitals included, 14 reported fixed liabilities. Of the 147 independent association hospitals, 73 reported indebtedness. The average indebtedness per bed ranged widely, from as high as five or six thousand dollars, or the entire value of plant and equipment, to amounts which were as small as twenty-five or fifty dollars per bed.

SUMMARY

Endowment capital is not an important factor in the financing of hospital service in the United States. The total number of beds fully supported by endowment income would probably not exceed 15,000 for the entire United States. Of a total of 2,604 hospitals organized on a non-profit basis, only 1,060 are estimated to control any endowment capital. Among this number of institutions, 125 of the more highly endowed hospitals are known to receive nearly 45 per cent of the income from the total hospital endowment. Among these 125 hospitals, only 31 control $2,000,000 or more endowment capital, or funds sufficient to endow fully as many as 67 beds each. *Most hospitals in the United States do not receive endowment income in sufficient quanti-*

ties materially to affect their financial policies. While it is true that certain individual hospitals, particularly some of the older ones in the metropolitan centers, depend upon endowment income to finance a high proportion of their expenditures, most of the hospitals in the United States are entirely unfamiliar with such sources of revenue. The annual operating expenditures of the 900,000 hospitals in the United States are about $900,000,000, which is more than twice the endowment capital estimated to be in existence.

PART III
CAPITAL VALUATION AND ACCOUNTING

CHAPTER X

THE VALUATION OF CAPITAL INVESTMENT

Capital investment is a prerequisite to hospital service. The problem of securing and maintaining adequate plant and equipment is common to every hospital, regardless of its control, type of medical service, bed capacity, or location. The discussion in the following chapters will concern itself with the problems of the individual hospital and the effect of capital investment upon its financing policies and costs. As in the case of capital investment for the United States, the first step is a discussion of the nature of capital investment, of methods for its evaluation, and of its influence on the problems of the individual hospital.

TYPES OF CAPITAL INVESTMENT

The capital of an individual hospital will be classified in the following discussion into three major categories: land, buildings, and equipment. By "land" will be meant the entire facilities attaching to the building-site of a hospital: the ground, shrubbery, pavement, walks, drainage systems, and municipal improvements requiring the payment of special assessments. "Buildings" include the cost of the general construction contract for foundation, masonry, and steel work, and also the mechanical equipment for heating, lighting, plumbing, electrical service, and elevators. Built-in features, such as pressure sterilizers, will be included, although in the reports of some hospitals these items are classed as equipment. "Equipment" is defined to mean equipment for the kitchen and laundry, furniture for offices and patients' rooms, as well as special medical and surgical apparatus and instruments, for X-ray, physiotherapy, electrocardiography, operating room, laboratory, and delivery room.

The relative amounts of capital represented by land, build-

ings, and equipment vary greatly, even within the limits of hospitals which are of the same size and type of service, controlled under similar auspices, and located in similar sections of the United States. Forty-five "general" hospitals, ranging in bed capacity from 101 to 200, were selected for special analysis as to relative investment in land, buildings, and equipment. These hospitals were all controlled under the auspices of non-profit associations and were selected from seventeen states. None of them was located in New York City or Philadelphia. Within this group of hospitals there were gross investments per hospital ranging from $172,398 to nearly $3,000,000. The investment in land per hospital ranged from as low as $15,000 to as high as $255,000. In one case it was but 4 per cent of the total investment; in several others, land represented more than 30 per cent of the capital. For the entire group, land represented 10 per cent of the total investment. The ratios of the building values to capital investment varied less than for the land. The total value of the buildings was 75 per cent of the total investment. The investment in equipment for all of these hospitals was 15 per cent of the capital investment.

BASES OF VALUATION

The financial measurement of the services of capital investment requires an estimate of the monetary value of the various capital assets. This requirement can be met only by agreement as to the kind of evidence which shall be accepted in the establishment of value. The value of capital investment may be established on the basis of three kinds of evidence: original cost, sale price, and replacement cost. In the writer's judgment, the services of hospital capital must be established on the replacement value of the assets, if the costs of hospital care are to be correctly measured and the utilization of capital investment to be directed wisely. The remainder of the chapter will define and illustrate each of these bases of valuation, with particular emphasis upon the advantages and limitations arising from the use of replacement cost.

By "original cost" is meant the actual cash outlay made by a hospital at the time of constructing or acquiring its property. No such expense may have been incurred by the hospital itself, for land, buildings, or equipment may have been donated by an individual or a group of contributors. In such a case, cost would be the amount paid by those who erected the hospital or arranged for its construction. The economic value of the hospital at any given time might be less than at the time of acquisition or construction, due to wear and tear of the physical plant and equipment. Under such conditions original cost would have to be adjusted by an allowance for depreciation. The price level during the last ten to twenty years has shown a general upward trend with regard to building costs. The original cost of older hospitals would, accordingly, have to be adjusted by an allowance for appreciation. Original cost usually must be adjusted to a greater or less degree by additions for appreciation and subtractions for depreciation.

"Sale price" is the amount which would be realized if the properties were disposed of immediately or within a reasonable length of time. Ordinarily the sale price of hospital buildings and equipment is considerably less than the original cost of construction, even though allowances are made for physical depreciation. To be sure, there might be a group of citizens ready to purchase the hospital at a premium above the original cost of construction (less depreciation) in order to keep the facilities within a particular neighborhood. A children's hospital in an eastern city, located in the heart of an industrial center, was recently taken over by a factory to serve as an emergency hospital for its employees. As to sale price when used in connection with land for a hospital site, the monetary valuation is the same as would be determined for the quantity to be described as "replacement cost."

REPLACEMENT COST

By "replacement cost" is meant the amount which it would cost to procure facilities equivalent both as to the quality of

hospital service and the expectation of its continued availability. It is not to be confused with the cost of reconstructing a new hospital of identical size and proportions. A hospital erected in 1930 would probably not be constructed with size and proportions identical to one built a decade or a score of years earlier. Most hospitals are designed in accord with prevailing theories on hospital construction.

It is sometimes difficult to determine satisfactorily what constitutes the replacement cost of the unused services in hospital plant and equipment.[1] For example, a hospital building which was erected forty years ago may have no value for sale in the real estate market, yet it may still be able to render a significant amount of service. A well-known hospital building in Cleveland has practically no market value, but it can, if necessary, be used for five or ten more years. In New York City a hospital building was "scrapped" in 1928, although it possessed much actual service-giving capacity. In the cases of both these institutions, however, the reasons for disposing of the old property were the medical advantages to be derived from better land sites, coupled with the fact that in each case the land could be sold for a sum which would provide a substantial amount toward the construction of new buildings.

Replacement cost measures the accountability of the hospital trustees and superintendents to the community in which the institutions are located. When the replacement values of hospital facilities increase above their original cost (less an allowance for depreciation), hospital trustees and superintendents find themselves faced with certain alternatives. It may be merely that their far-sighted planning has provided the hospital during

[1] With respect to land, the term "replacement" is not particularly applicable, for, strictly speaking, land cannot be replaced. By "replacement cost" for land is meant the price which the owner would need to pay if he were to buy the land at the present time. This amount is, of course, the price which he could obtain if he were to sell at the present time. The replacement cost, therefore, is merely the existing market value, or sale price, for land of this type. The limitations upon realizing the market value through an immediate sale will be mentioned in following paragraphs.

a period of low building costs and that such benefits as now accrue to the hospital are unmixed with a need for changing the land site.

On the other hand, the increase in the value may attach primarily to the land because of general changes in real estate values in the community. In either case, the management should utilize the hospital plant and equipment in a manner consistent with their present value. It occasionally happens that a site originally purchased at a very low cost—in a large city for example—has since appreciated so that it could be sold to a real estate company at a moment's notice for $1,000,000. Under circumstances where it is necessary to plan the extension of existing hospital facilities, and, in fact, to ask the community for contributions to the new plant and equipment, the community may well ask, "Why do you not dispose of the land which you now have at a price of $1,000,000 or more, move to a location where you can purchase a new site for $100,000, and then have available for the erection of a new institution the sum of $900,000?" A hospital's policy may not permit positive action on such a proposal; nevertheless, in a complete understanding of hospital planning, the replacement value of the land must be taken into consideration.

As far as buildings are concerned, replacement cost has all the advantages of original cost with none of its disadvantages. In the first place, the replacement cost of a recently constructed building is identical with original cost. In the second place, replacement cost of an old building takes into consideration the length of time for which it will still be available. For example, a building having only ten years of useful life would not be given the same economic value in the balance sheet of a hospital as one which was capable of rendering thirty or forty years of service.

The replacement cost of equipment is essentially identical with original cost, less depreciation, for the reason that changes in the price level are not important factors. Some special types of equipment, particularly in the X-ray room and in physio-

therapy departments, may become obsolete for medical reasons long before they have rendered their full physical service.

The proper rate of depreciation that is to be charged for buildings and equipment has not been agreed upon by most people, and, in fact, no particular rate of depreciation could be regarded as applicable under all circumstances. It is sometimes held as a general matter of principle that hospitals of fireproof construction may be expected to last fifty years and that a reasonable rate of depreciation to assume in the current expense account is 2 per cent per year. Many hospital men feel, however, that 2 per cent is too small a percentage, and that $2\frac{1}{2}$ or even 3 per cent is not too great an allowance to be included in the report of a particular fiscal period.

There are isolated instances where hospital buildings have actually remained in use for one hundred years or more. It is said that some of the institutions in Europe at the present time were erected three or four hundred years ago. Those familiar with the type of care which these institutions make possible are convinced, however, that the fact that they are still available to the public is of historical interest rather than of scientific value. The use of such institutions may be a credit to the economizing tendencies of the administrative officials of the community which they serve, but it is more frequently merely an indication of the low standard of hospital service which is offered.

The rate of depreciation on equipment cannot be stated in one amount. Furniture tends to be unsuitable for hospital use at the end of approximately ten years, although in some instances it remains in service as long as fifteen or twenty years. Specialized equipment for medical and surgical care usually becomes obsolete after approximately five years of use, whereas some of the particular types of equipment cannot be used more than two or three years if the hospital expects to keep step with the advance in medical service.

Some hospitals fail to include in their balance sheets any reasonable valuation for the equipment within their walls. One institution owning equipment with a replacement cost of ap-

proximately $500,000 maintained no record of these assets. Another institution, having equipment worth approximately $200,000, carried only a few of the items in the balance sheet at a total of less than $30,000. These were figures established fifteen years ago at the time the hospital building was erected.

CHANGES IN LAND VALUES

The relatively high value of land sites in metropolitan areas has been responsible for many of the building programs in recent years. Where it has been inadvisable to expand existing facilities, entirely new hospitals have been erected to replace those already in existence, either on the old land sites or on new. Two important hospitals in New York recently followed the former procedure. Until 1928, one of the hospitals was housed in a small 143-bed institution, evaluated at approximately $400,000 and occupying land of almost equal value. It has recently completed a 500-bed hospital at a cost of more than $10,000 per bed. A hospital in Cleveland, Ohio, found itself faced with the need for additional facilities, and, realizing that its valuable land could be sold at great financial advantage, it disposed of its site in the residential section and erected an entirely new plant on the outskirts of the city.

The theoretical advantages of disposing of valuable land sites are often offset by the practical difficulties of serving the public, of securing a reasonable price for the physical plant and equipment, and of securing the co-operation of the physicians who are to take care of the patients in the institution. Many physicians object, and rightly so, to hospitalizing patients in areas which are difficult of access for themselves and the patients. After all, the hospital facilities are intended for the convenience of the patient and for the effective practice of medicine by the physician. The savings to be gained by erecting a hospital on a less expensive site may result in a reduction of the amount of medical care rendered by the institution, or in increased expenses, as for transportation, to be borne by the community.

Such objections as have been cited to the disposal of real

estate do not, however, affect the desirability of giving full recognition to the replacement of the property. In fact, they illustrate very forcibly the need for a clear understanding of the importance of capital investment in hospital service. Evaluation of hospital plant and equipment involves many factors, the most important being the ultimate medical service to the community. The cost of procuring equivalent services may at times be very great, and this fact should not be obscured by historical facts as to original cost of construction or apparent advantages to be gained from disposal at a nominally attractive sale price.

EQUIPMENT VS. SUPPLIES

Expenditures for additional capital assets should be clearly differentiated in practice from expenditures applicable to the costs of a given month or year. The former are usually designated in accounting terminology as "capital expenditures." The latter, which include salaries, supplies, purchased services, as well as the current (rather than total) services of capital assets, are known as "revenue expenditures." The total services of a building, for example, are applicable for a period of thirty or forty years, whereas the services of an orderly or nurse usually pertain only to the day or month during which they are rendered. It would be incorrect to charge the cost of a nurses' dormitory as an expense of the particular year during which it was completed; similarly, it would ordinarily be pointless to apportion the salaries of nurses and orderlies paid during any one month to the operating costs of periods during which they were not employed.

The services of all the factors—of capital assets, of labor, and of supplies—pertaining to hospital care should be charged against the fiscal period during which they are rendered. With regard to capital assets, this task requires the apportionment of the total value of their services (usually the original cost of the plant and equipment) to a series of months or years. For land and buildings the apportionment becomes the problem of esti-

mating the periodic interest and depreciation, a problem which has been solved in the practice of most hospitals by ignoring both of these items entirely. With respect to equipment, however, the services of the capital assets have generally been included in measuring hospital costs; but the value of services of equipment is not ordinarily estimated in terms of the depreciation of, and interest on, the value of the equipment. More frequently, it is assumed to be equal to the expenditures necessary to replace existing equipment during a given month or year.

"Equipment" has been the cause of much confusion in hospital circles, and it should be sharply differentiated from "supplies." The equipment serves the institution during a relatively long period of time and is a part of the capital investment. It includes such items as furniture, X-ray machines, cystoscopes, operating-room tables, and physiotherapy apparatus. Supplies are ordinarily consumed during the fiscal period in which purchased, and at any given time the stock on hand is relatively small. Illustrations are drugs, bandages, raw food, fuel, etc. The dividing line between equipment and supplies is often difficult to draw in practice, and decisions in individual cases frequently must be arbitrary.

The State of Pennsylvania Department of Welfare, which grants financial aid to hospitals on the basis of services rendered at less than cost, has prescribed the following procedure: Equipment purchased for the first time enters the accounts as an asset, and appears on the balance sheet from time to time as part of the capital investment. Later purchases of identical equipment for replacement are charged to current expenses. Additional equipment which duplicates that on hand, or which expands the scope of the service, must be recorded as an asset. For example, when a hospital purchases a cystoscope or an electro cardiograph, the purchase price of such a machine would show on the balance sheet as an asset. Later, when a machine is replaced by a new one, the cost of the new one is charged to the current expenses of the hospital during the period of operation.

Certain types of materials are permitted to be charged off as current expenses, no matter when, or under what conditions, they are purchased. These items are always called "supplies."

The question as to what constitutes supplies and what constitutes equipment in a hospital is one which is not easily settled, and on the basis of theory cannot be easily determined. The state of Pennsylvania actually lists the items which are to be regarded as supplies and invariably charged off to current expenses, and also enumerates those which are to be regarded as equipment and carried on the balance sheet as assets. There were some differences of opinion on these matters, but the Department of Welfare considered that for its purposes uniformity was to be preferred to logical distinctions which might prove difficult to apply in practice.

The correct measurement of the services of hospital capital also becomes very important where local community support is based upon presumed costs of hospital care. Many community chests have adopted the policy of excluding from the costs of hospital care all expenditures which tend to increase capital investment, such as the construction of buildings or the expansion or improvement of plant and equipment. They have also usually taken the stand that the services of existing plant and equipment, as estimated by allowances for interest and depreciation, should not be included as costs for purposes of calculating the amount of community support to which a hospital is entitled. This policy assumes, of course, a clear-cut definition and measurement of the capital expenditures, and the careful exclusion of the services of capital assets in the accounts rendered to the community. There has been a departure from the policy in one very important respect, namely, by classifying the replacement of "equipment" in the same accounting category as the purchase or consumption of "supplies." This procedure has the same financial effect as an allowance for depreciation for equipment: the annual replacements of individual items are normally equivalent to the depreciation of the investment in equipment.

CHAPTER XI

CHANGING TRENDS IN CAPITAL INVESTMENT

There has been a rapid growth in hospital facilities during the last two decades, when measured in terms of bed capacity. Records of the American Medical Association indicate that hospital bed capacity has more than doubled in the last twenty years and that the average increase per year has been approximately 20,000 beds. Much of this increase, however, has been accomplished by the enlargement of existing hospitals rather than the establishment of new ones.

DATES OF FOUNDING FOR REGISTERED HOSPITALS

In 1909 there were 4,359 hospitals reported, with a bed capacity of 421,065, including bassinets. The average capacity per hospital at that time was 96, as compared to 130 for the 6,852 hospitals registered in 1928. The extent to which the increased bed capacity has been the result of expanding existing hospitals may be determined from Table XXIX, which is based upon the reported dates of founding the registered hospitals and their bed capacities. The table shows that the hospitals established in recent years have a very low average bed capacity, due in part to the many hospitals being established in small cities serving rural communities. The greater percentages of beds is reported to be in hospitals established during or before 1900. The average bed capacity for each group of hospitals increases directly with the remoteness of the period during which they were established, except for those reported as founded during the years 1801 to 1825. During the nineteenth century there were 2,070 hospitals established which were still in existence by 1928, an average of 21 per year. During the twentieth century there were 4,182 hospitals established, which were still in existence and admitted to the register in 1928. This latter group

represents an average of 149 hospitals per year since 1900, although they contain less than half the available beds.

Table XXIX shows that of the 6,852 hospitals registered in 1928, only 3,410 had been founded by 1910 or earlier. A large number of small hospitals have been abandoned since 1910 and

TABLE XXIX

HOSPITALS, BEDS, AVERAGE BED CAPACITY, AND NEW HOSPITALS PER YEAR IN ALL HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION IN 1928, CLASSIFIED ACCORDING TO THE PERIOD IN WHICH FOUNDED

Period in Which Founded	Number of Hospitals Founded	Total Bed Capacity	Average Bed Capacity	New Hospitals per Year
All periods	6,852	892,934	130	.....
1700–1800	15	8,812	587	.....
1801–25	46	13,138	286	1.8
1826–50	129	66,332	514	5.1
1851–75	471	172,055	365	18.8
1876–1900	1,409	302,139	214	56.4
1901–25	4,349	311,277	72	174.0
1901–5	565	53,265	94	113.0
1906–10	775	69,032	89	155.0
1911–15	913	70,170	77	182.6
1916–20	1,027	65,029	63	205.4
1921–25	1,069	53,781	50	213.8
1926–28	433	19,181	44	144.3

replaced by hundreds of others. The total number of registered hospitals has changed less than 1 per cent since 1923, when there were 6,830. Of this number, and of those established during 1924 and 1925, 417 had been abandoned by 1928. The abandoned hospitals were replaced by 433 hospitals reported as established in the years 1926–28.[1]

[1] The registered hospitals in 1929 were 6,665, a reduction of 187 from the 6,852 registered in 1928. The decrease is only partly accounted for by the increase of non-registered hospitals from 458 to 504. There were 15 of the non-registered established hospitals admitted to the register, and 39 removed because of disapproved practices. The additional 22 non-registered hospitals were either established during 1929 or inspected and reported on for the first time in that

THE TREND IN HOSPITAL CONSTRUCTION

The author verified by correspondence the investments in 85 hospital projects reported in the October, 1929, *Bulletin of the American Hospital Association*. Of this group, which involved a total expenditure of $57,803,000, only 24 of the projects represented the foundation of entirely new hospitals. These 24 hospitals contemplated an expenditure of $15,483,000, half of which represented the cost of one state nervous and mental hospital in New England. Sixty-one of the projects, with more than $42,000,000 total expenditure, were for the enlargement of existing bed capacity or the improvement of the plant and equipment.

The improvement, rather than expansion, of facilities has been a characteristic feature of recent hospital construction, both in the growth of old hospitals and the establishment of new. The development of hospital facilities is at present intensive rather than extensive. Hospitals have expanded their functions by the introduction of out-patient service, the addition of diagnostic and therapeutic equipment, and the installation of facilities for medical and nursing education and research. In a few of the teaching hospitals, members of the medical school faculty maintain offices for their private practice.

The general enlargement of functions, with increased space, personnel and clientèle, requires an improvement of facilities. Frame or fire-resistant buildings which might have sufficed for the accommodation of a small group of patients become inadequate when the program is expanded. Growth of hospital service requires the improvement as well as the enlargement of facilities. These factors, coupled with the fact that prices have increased during the last twenty years, account for a tremendous

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year. The variation in registered hospitals was also affected by the admission of 247 new hospitals, and the exclusion of 410 because of discontinuance, merger, or previous improper classification. Many of the 410 hospitals are still in existence with similar bed capacities and medical service. They include, for the most part, hospital departments of institutions, where the facilities are suitable primarily for custodial care and the nursing of minor ailments.

growth in capital investment in hospitals. The growth is particularly striking when expressed in terms of investment per bed, because so much of the expenditure has not been made with a view to accommodating additional patients.[1]

HOSPITALS IN PENNSYLVANIA

In 1923 there were 149 hospitals which reported their capital investment to the Department of Public Welfare of Pennsylvania. These hospitals represented a total bed capacity of 15,822, and a total capital investment of $36,143,467, which represented an investment per bed of $2,422. In 1927, reports were received from these same institutions, with a total bed capacity of 16,901 and a total capital investment of $58,004,442. The average investment per bed had increased to $3,432. This increase of $1,200 per bed was accomplished during a four-year period, an average of $300 per year, and represented actual expenditures for the improvement of existing facilities. To be sure, the 1,079 extra beds undoubtedly required a greater relative expenditure than the average investment per bed which finally obtained in 1927. But only a small portion of the $22,000,000 increase was necessitated by the increase in bed capacity. The investment per bed increased more than 50 per cent during the four years. It should be mentioned, however, that the reports made to the Department of Welfare in 1923 repre-

[1] The F. W. Dodge Corporation, in their "Prospect for Construction" in 1930, Data Sheet No. 1-C, report that 847 hospital building projects were undertaken in 1929, in the 37 states east of the Rocky Mountains. These buildings represented 15,249,000 square feet of new floor space, and an expenditure of $124,504,000, for general contracts, not including mechanical equipment, office or bedroom furniture, or medical and surgical apparatus and equipment. The total expenditures for land, buildings, and equipment in 1929 were probably not less than $200,000,000, although total bed capacity increased by less than 20,000, with most of the increase occurring in state nervous and mental hospitals. The 15,000 new beds in state nervous and mental hospitals would account for not more than $35,000,000 investment, with the remainder applying to the improvement and replacement of other facilities. The average annual number of hospital projects for the years 1925–28 was 896, with floor space of 15,000,000 square feet and $130,000,000 expenditure for general contracts.

sented the first attempts on the part of some of these hospitals to establish capital accounts for plant and equipment. Many of them reported book values which were admittedly below the replacement values of the property. Since 1923 the basis for granting state aid has required a careful measurement and classification of capital expenditures. Nevertheless, it is surprising that a group of representative hospitals in Pennsylvania, averaging 110 beds per institution, should find it necessary to increase their investment per bed more than $300 each year, over and above the expenditures for their maintenance and repair.

HOSPITALS IN GREATER NEW YORK

A similar condition is reflected in the data concerning 13 New York City hospitals, which reported bed capacities and invest-

TABLE XXX

BED CAPACITIES, VALUATION, AND CAPITAL INVESTMENT PER BED OF 13 NEW YORK CITY GENERAL HOSPITALS AT FIVE-YEAR INTERVALS

YEAR	BED CAPACITY		VALUATION		INVESTMENT PER BED	
	Number of Beds	Percentage Increase after 1912	In Dollars	Percentage Increase after 1912	In Dollars	Percentage Increase after 1912
1912	2,517	.....	13,198,000	.....	5,203	.....
1917	2,988	18	17,057,000	30	5,708	10
1922	3,150	25	21,795,000	50	6,919	33
1927	3,670	49	29,366,000	115	8,001	55

ment to the United Hospital Fund during a period of fifteen years from 1912 to 1927, as shown in Table XXX. All of these hospitals continued to serve their patients with some portion of the same plant and equipment during this period. The group enlarged their total bed capacity by approximately 50 per cent during the fifteen-year period; their capital investment increased more than 100 per cent. The average investment per bed advanced from $5,203 to $8,001, a total of $2,800, or $186 per year, not including appreciation in the value of land sites. Several of these hospitals since 1927 have either occupied new

quarters or planned the construction of entirely new hospital plants. Bed capacities and reported valuations were secured from statistical sheets prepared as part of the United Hospital Fund's annual report. The hospitals, with their 1927 reported capacities, in some cases including bassinets, are as follows: Beekman Street, 100; Beth Israel, 143 (old hospital); Flower, 227; French, 106; Knickerbocker, 200; Lebanon, 192; Lennox Hill, 346; Misericordia, 340; Mount Sinai, 669; New York, 320; Post-Graduate, 420; St. Luke's, 417; St. Mark's, 190.

PRESENT-DAY CONSTRUCTION COSTS

What capital investment is required to provide adequate hospital facilities at the present time? The answer may be expressed in terms of investment per bed for a given hospital or investment per person in a given community. But no answer can be given which would apply to all hospitals or communities. The appropriate investment in hospital plant and equipment is affected by a variety of factors, such as the functions the hospital is to perform; the prevailing prices for land, labor, and materials; the customs and economic status of the population to be served; the training and attitudes of the various professions concerned with medical care; the existent or future programs for public health service. Because of these factors a mere tabulation of investments per bed for a group of hospitals or investment per person for a number of communities would throw little light on the problem at hand. Accordingly, the following discussion will be limited to illustrative cases of recently constructed hospitals, with emphasis on the differences in capital investment resulting from differences among the hospitals themselves or among the conditions under which hospital facilities were provided.

A well-known "teaching" hospital in the Central West was constructed in 1898 at a total cost of $565,000, with a bed capacity at that time of 298, which remained unchanged until 1922, when it was reduced by 35 beds in order to provide office space for physicians from the medical school faculty. Capital expenditures for the hospital gradually increased, until in 1928

capital investment was reported as follows: land, $86,800; buildings, $761,921; equipment, $105,776. The replacement value of the hospital plant and equipment in 1928 was approximately the same in total, but quite different in detail, namely: land, $800,000; buildings, $5,000; equipment, $200,000. The service life of the old building is rapidly nearing its end, and the plant will be razed when a new pavilion with 316 beds is completed at a different site. The new building is estimated to cost $2,228,707, not including land and equipment, which will represent approximately $600,000 additional capital. A separate private patients' pavilion of 77 beds will also be erected at a cost of $770,000, and expenditures for a nurses' dormitory (for these hospitals and two others in a group) will be $1,381,000. In short, the old hospital, which provided 263 "beds," with an approximate investment of $1,000,000, is to be replaced by new facilities providing 393 beds and involving an expenditure of $4,951,000. The investment per bed of the old hospital was something less than $4,000; the investment per bed of the new hospital will be something more than $12,000. Approximately $4,000,000 is being spent to increase the community's nominal bed facilities by only 130, although the practical effect is more like an increase of 393 beds.

IMPROVEMENT OF EXISTING SERVICES

Other similar illustrations could be cited to show that the costs of erecting hospital facilities have increased over those of ten or twenty years ago. Many expenditures for plant and equipment do not increase the bed capacity for hospital service. For example, a nationally known hospital in New England expended $1,462,000 during the period from 1919 to 1928 entirely for renovating, remodeling, and improving existing services. An addition was made to the nurses' home, a patients' pavilion was rendered fireproof, and extensive changes were made in the power plant, laundry, and out-patient department; but no increase in available patients' beds resulted from these outlays. Many hospitals are adding new physical features which improve service but do not increase the number of beds available for

patients. A hospital in Ohio has recently completed a nurses' home at a total cost of $600,000.

Some of the new hospitals are erecting the first units of their service in such manner that future expansion can be achieved without additional facilities for heat, light, power, and laundry service. At the present time an independent hospital association in Chicago is erecting a 170-bed patients' pavilion which ultimately will be expanded to accommodate 300 patients. The first unit provides accommodations as follows: beds in private rooms, 70; beds in semiprivate rooms, 92; beds in wards, 8. The total cost of the building and mechanical equipment, including architects' fees, will be $1,548,558. This does not include an allowance for furniture for offices or bedrooms, or for medical or surgical apparatus. No accommodations are provided for a nurses' training school or for an out-patient department. The land site to be utilized will be that occupied by certain old hospital buildings, soon to be razed. The entire land site has been appraised at approximately $1,000,000, and the portion to be used by the new hospital at $400,000. This amount is not included in the figures cited above.

CONSTRUCTION-COST DATA OF TYPICAL HOSPITALS

A firm of well-known architects prepared the following schedule of expenses for a hospital near Philadelphia intended to accommodate 100 patients with 29 private rooms, 24 semiprivate beds, and 48 ward beds. The nurses' home will house 50 nurses in single rooms and suites and four female lay employees in single rooms.

Hospital:		
General building and mechanical contract..	$750,000	
Furniture, curtains, etc.....	55,000	
X-ray, cardiac, and laboratory equipment..	16,000	$ 821,000
Nurses' home:		
Building.....	185,000	
Furniture, curtains, shades, rugs, etc.....	15,000	200,000
Total.....		$1,021,000

The costs shown above represent $10,000 per patient bed for a 100-bed institution, not including operating table, surgical instruments, linen, silver, glass, or china, or a garage for an ambulance. They include no allowance for the value of the land on which the hospital is to be located, which, according to a conservative estimate, would be $50,000.

Data from the Duke Endowment indicate that small hospitals well in keeping with the requirements of the local communities in North Carolina are being erected in the southern states at costs which range from $2,000 to $4,000 per bed. The model plans prepared by Hannaford and Sons, of Cincinnati, indicate that hospitals of fireproof construction and with adequate provisions for medical and surgical care, but without nurses' training quarters, can be erected at approximately $3,000 per bed, with a view to accommodating from 34 to 40 patients. Lower rates can be secured on smaller hospitals where fully fireproof construction is not considered necessary. A 40-bed hospital was recently erected in Indiana at a cost of construction for the building of $78,000, not including plumbing, heating, electrical apparatus, or elevators.

A California architect provided data concerning three small hospitals designed by him for use in a warm country. The first hospital was a one-story building, with reinforced concrete exterior walls, concrete and terrazzo finished floors, wooden interior, with plaster on metal lath, cross fire walls, and tile roof. It had 29 rooms, none having more than 2 beds, with 44 beds in all. All services were planned for an extension to 70 beds. The cost, including architects' fees and including all stationary equipment attached to the building (but not including land, furniture, furnishings, or anything in the way of chattels), was $169,731, or approximately $3,850 per bed.

The second hospital, with a capacity of 85 beds at present (and all services planned for a future capacity of 100 or 110 adult beds), cost $269,305, or approximately $3,168 per bed, excluding land and equipment. When a maternity wing is built, the investment per bed will be reduced by four or five hundred

dollars. The clinic, kitchen, boiler-rooms, operating rooms, and other special features have already been provided.

The third, which is a general community hospital of 40 beds, with plans to expand to 60 or 65 beds, has cost $148,500, or substantially $3,712 per bed, excluding land and equipment. According to the number of beds, ranging from 40 to a possible 125 in buildings of this class, the cost per bed ranges from $3,800 to $3,100. In the case of the first hospital there is individual plumbing only in the wards more distant from the nurses' stations.

SUMMARY

Several facts are clear from the foregoing discussion and illustrations. (1) The capital investment in hospitals has increased enormously in recent years, and present-day construction programs and costs indicate that the expenditures have not reached the end. (2) Much of the capital expenditure is for the intensive development of facilities rather than for the provision of more beds for patients. (3) At the present time there seems to be a slowing-up in the founding of new hospitals, the tendency being rather to develop the facilities of existing institutions.

The capital necessary for adequate modern hospital care is great enough to justify the careful consideration of the rôle of plant and equipment in hospitalization. For every patient to be accommodated in the better class of general hospitals, there is required an investment per bed of from $3,000 to $15,000. These amounts are irrecoverable and cannot be diverted to other public or private service. If placed at 5 per cent interest, they would each provide from $0.40 to $2.00 daily for hospital care. Plant and equipment themselves deteriorate from use and obsolescence. These facts necessitate careful attention to the costs arising from capital investment and to the influence which capital investment exerts upon hospital costs and financing policies. The remaining chapters in Part III are devoted to a discussion of these problems.

CHAPTER XII

CHIEF PURPOSES OF COST ANALYSIS

Hospital service is pre-eminently a service entailing high overhead costs. The capital investment necessary to render hospital service is relatively large, a modern hospital representing from $100,000 to $10,000,000 worth of plant and equipment. The amount of investment per bed is also large, ranging from $1,000 to $15,000, depending on the special conditions surrounding the construction and operation of the hospital. The value of plant and equipment tends to depreciate at rates which are more or less independent of the extent to which they are utilized in hospital service. Much of the hospital capital comes from voluntary contributions of persons who are not beneficiaries of the hospital in the direct sense. Hospital patients, as such, contribute but a portion of the total amount necessary to render the hospital care which they receive.

The facts summarized above underlie the need and demand for careful accounting for the services of hospital capital. It is not enough for a hospital to receive and expend its capital funds in accord with legal requirements. A hospital must also render an account of its activities and be able to show that its facilities are wisely utilized and that its functions are economically performed. This latter result can be achieved only through accurate analysis of the various hospital activities and careful measurement of their economic costs. This requirement is submitted in the interests of a better comprehension of hospital services by the communities which finance them, rather than as a plea for intricate accounting tecnhique in hospital administration. Up to the present time only the most rudimentary analyses of hospital costs have been attempted, a situation which has, in the writer's opinion, made difficult many problems of hospital

finances. The present chapter sets forth some of the chief purposes of cost analysis as they apply to hospital service.

COST ANALYSIS

"Cost analysis" is the classification and measurement of the costs of hospital services. The term is used in preference to "cost acounting" for two reasons: first, to avoid the feeling of bewilderment which often attacks laymen (even accountants) when cost-accounting systems are discussed; second, to emphasize the fact that accounting data are a means to an end. It is possible for a person to understand the principles of classifying and measuring hospital services even though he might have neither the training nor the patience to record the data which are necessary to effect these results.

There are two chief purposes of cost analysis: the first is the comparison of the economic efficiency of methods, departments, or processes involved in producing commodities or services, with a view to continuing or changing them in the future; the second is the comparison of the income and cost of the respective commodities or services with a view to effecting a satisfactory relationship between income and outgo. These two purposes will be discussed separately with a view to answering two questions which arise in the minds of those readers who are concerned with hospital management: "How will cost analysis enable me to manage the affairs of my hospital as a whole and of various departments more efficiently?" "Of what aid will cost data be in establishing a more satisfactory financial policy, either through the adjustment of rates for the various hospital services or through solicitation of community support for services performed in the interests of the community?"

COST ANALYSIS AND MANAGEMENT

The advantages of cost analysis in the utilization of funds are apparent to hospital administrators who appreciate their responsibility to trustees and to patients. Much discussion of hospital budgeting, stock control, nursing procedures, power-plant

supervision, and per capita food costs has grown out of an awareness of the advantages of studying hospital costs. The idea that cost analysis aids internal administration is not a new one. But discussion in hospital circles has, almost without exception, ignored the influence of capital investments on hospital costs. Emphasis will be placed upon this new phase of cost analysis in the three chapters immediately following. Cost analysis will be there discussed and illustrated as a device for achieving better utilization of capital investment and a better understanding of the total costs of hospital service.

COST ANALYSIS AND FINANCING POLICY

The gains to be derived from comparing the income and expense of the various hospital services are less commonly recognized. This condition has resulted from an unwarranted assumption often expressed by hospital people, that cost analysis necessarily accompanies a policy of pricing all services at amounts which equal or exceed their respective costs. It is generally recognized among business men that the determination of the cost of a product does not dictate establishment of a selling price which will exceed or equal this cost. Business enterprises regularly sell some products at less than their costs, being content if the profits on others offset such losses. Likewise, many hospitals offer certain services at prices equal to presumed costs; others, at less than cost; still others, at prices which exceed cost. It is impossible to carry out such policies unless the costs of the services are known.

Cost analysis lies at the root of a satisfactory financing policy for an individual hospital. In case all current and capital expenditures must be met from patients' fees, the analysis of the costs of the various services makes possible an adjustment of rates which will yield the greatest net income. In case community support is required, cost analysis makes possible a presentation of the facts as to which classes of hospital patients and services make necessary the outside contributions. In every case it is important to separate the capital costs (fixed charges)

from the operating costs, for many hospitals appeal to different groups for recovering each class of expenditures. Chapters xvi and xvii emphasize the importance of cost analysis in financing policy, although this point will also be implicit in the discussion emphasizing the need for wise utilization of capital investment.

PRACTICAL LIMITATIONS OF COST PER PATIENT-DAY

There is no single unit of activity which characterizes all essential functions, although it has been customary to rely upon a financial unit known variously as "cost per patient-day," "per capita cost," or "per diem cost." Cost per patient-day is usually calculated as follows: The total expenses of the hospital for a fiscal period are divided by the total "patient-days" of care rendered. For example, the total expenses might be $200,000. The total patient-days of care rendered during a fiscal period might be 36,500. The average cost per patient-day, therefore, is $200,000 divided by 36,500, which is $5.41 per patient-day.

The limitations of cost per patient-day have been recognized in the literature, and the discussions at meetings of hospital managers reveal the lack of confidence in this financial unit as the expression of a hospital's activity. Severe criticisms have been leveled at "cost per patient-day," particularly when used for purposes of comparing the relative efficiency of different hospitals. A symposium contributed to by a group of hospital superintendents in the August, 1929, issue of *Hospital Management*, concerning the limitations of "cost per patient-day," brought forward a flood of citations where its indiscriminate use had caused difficulties. The numerous criticisms centered around three main points: first, that hospital services vary from one hospital to another, and a mere comparison of the per capita costs throws no light on the efficiency and wisdom with which hospital funds are expended; second, that cost per patient-day for a particular institution varies widely with percentage of occupancy; third, that hospitals do not use uniform methods of calculating the cost per patient-day.

This last criticism is so patently true, and so studiously avoided in polite discussion, that it should be elaborated somewhat. There is wide variation in each of the three items entering into cost per patient-day. No agreement has been reached as to what constitutes "cost," what is a "patient," or what is a "day." Some hospitals include interest and depreciation in their total costs; other institutions similar as to size and control do not. Some exclude, and others include, the costs of out-patient service, of social service, of financing, or other special types of expenses. As to what is a "patient," there is also a disagreement in practice. Most institutions include as patients (for the purposes of calculating patient-days of care) newborn infants, whether or not a separate charge is made for their care. Other hospitals limit the term "patients" to adults or children who enter or remain in the hospital for individual medical or surgical care. The concept of the term "day" is not uniform in practice. Some hospitals recognize fractions of days in their summation of days of care: others do not.

ATTEMPTS AT UNIFORM CLASSIFICATION OF EXPENSES

All of the foregoing discussion emphasizes the fact that cost per patient-day is not satisfactory as a practical basis for comparing the activities of similar hospitals because of the difficulty of establishing definitions of its components. Attempts have been made from time to time to remove these difficulties by establishing uniform classifications of accounts for hospitals. The most pretentious was that made by a special committee of the American Hospital Association in 1921, when a set of records and reports was recommended for use by hospitals. The acceptance of this committee's recommendations was retarded by the fact that its uniform classification of accounts was accompanied by bookkeeping records which were recommended for use by hospitals adopting the system. Many hospital managers, failing to distinguish the advantages of uniform classification from the need for elaborate bookkeeping records, ignored the recommendations as "too detailed" for their special purpose.

If hospitals were to follow the recommendations of this committee, they would all calculate a figure for cost per patient-day on the same basis. Explanations of differences in cost per patient-day would then be sought in the variety and extent of the service rendered by the different hospitals and in the degree to which their facilities were utilized. Assuming that the output of a given hospital is homogeneous, the cost of rendering service to a bed patient for a day would be a significant index of its efficiency and would serve as the basis for relating income to expense. But, as the next paragraph points out, the number and cost of the days of bed care gives no clue to the wide variety of hospital services performed in the modern hospital.

VARIETY OF HOSPITAL FUNCTIONS

Only a part of the total hospital income is based upon the number of days of bed care rendered to hospital patients. An analysis of the income of 87 non-governmental general hospitals located in fourteen different states revealed the fact that approximately 22 per cent of the total receipts from patients were for "special services" other than "board and room." These other services included the following: X-ray, laboratory, physiotherapy, operating room, electrocardiograph, etc.

Of these 87 hospitals the distribution of the ratios of board and room income to total receipts from patients was as follows: 2 hospitals showed percentages from 41 to 50; 10 ranged from 51 to 60 per cent; 43 from 61 to 70; 29 from 71 to 80; and 3 from 81 to 90. It should be remembered, of course, that these are percentages which the receipts from board and room bear to total receipts from patients, not to total receipts of the hospitals. Many of these hospitals were known to receive current income from other sources than patients' fees. As a measure of the ratio of earnings from the various classes of hospital service, however, the percentages given above are probably correct. For each of these hospitals endowment income or voluntary contributions were applied, generally to the hospital bills of the patients served.

But even the several varieties of in-patient care are not the total product of some modern hospitals. A large amount of medical care is often available in the out-patient department for those persons who are up-and-about. Hospitals also engage in the education of physicians, nurses, and the general public, and, in addition, many of them provide both facilities and data for research in problems of medical and social science. Capital investment is necessary to each of these various functions: in-patient and out-patient care, medical and nursing education, and medical and social research. The measurement of the costs of these various functions requires allocation of the total services of capital investment to these functions.

CHAPTER XIII

CAPITAL INVESTMENT AND FIXED CHARGES

If a hospital were to purchase, on the open market and on a strictly business basis, all the services necessary to hospital care, the process might be somewhat as follows: The management would first procure a hospital building, suitably planned, located, and equipped, for which an annual rental would be paid. If a building suitable for hospital purposes were not already available, the trustees might raise funds to finance construction of a new one. In either event an annual rental—perhaps 10 per cent of the total invested capital—would be recognized as the first and primary cost in hospitalization. In addition, costs would be incurred for personal service; executive officers, physicians, nurses, anesthetists, laboratory and X-ray technicians, orderlies, cooks, mechanics, charwomen, bookkeepers, etc., would be employed. Finally, expenditures would be made for the supplies and services necessary in hospital care, such as food, medical and surgical supplies, fuel, water, electric current, etc.

FIXED CHARGES DEFINED

The foregoing paragraph showed that three factors contribute to the rendering of hospital care: plant and equipment, personnel, and consumable supplies. The costs of the services of plant and equipment will be referred to in the following discussion as "fixed charges," as opposed to operating costs, which include all other expenditures. The term implies, of course, that fixed charges do not vary with the amount of medical care rendered in the hospital. The group of costs included in this category, such as taxes, insurance, interest, and depreciation, tend to be "fixed" in amount, and not to vary with the degree of utilization of facilities. No expenses are, of course, entirely independent of the amount of hospital service. All of them vary

to some degree. The data in Table XXX A show that fixed charges per patient-day are important factors in hospital costs;

TABLE XXX A

FIXED CHARGES PER PATIENT-DAY COMPUTED FOR VARIOUS INVESTMENTS-PER-BED AND AT 60 AND 75 PER CENT OCCUPANCY OF HOSPITAL CAPACITY

INVESTMENT-PER-BED	ANNUAL FIXED CHARGES PER BED*	FIXED CHARGES PER PATIENT-DAY	
		Occupancy 60 per Cent	Occupancy 75 per Cent
2,000	$ 160	$0.73	$0.58
3,000	240	1.11	0.88
4,000	320	1.46	1.17
5,000	400	1.83	1.46
6,000	480	2.19	1.75
7,000	560	2.56	2.04
8,000	640	2.92	2.34
10,000	800	3.65	2.92
12,000	960	4.38	3.50
15,000	1,200	5.55	4.38

* The annual fixed charges are computed as 8 per cent of the total capital investment: 5 per cent interest and 3 per cent depreciation. The depreciation is estimated as follows: 2 per cent on the value of the buildings, assumed to be 70 per cent of the total, and 10 per cent on "equipment," assumed to be 15 per cent of the total. Land is assumed to be 15 per cent. These figures for depreciation are somewhat below those ordinarily recommended by hospital accountants.

also that they tend to decrease when facilities are utilized to a higher percentage of capacity.

CURRENT NEGLECT OF FIXED CHARGES

Plant and equipment are considered first in planning the total program of hospital care; yet prevailing methods of hospital financing often obscure their significance, their amounts, and at times their very existence. Most hospitals (government and private alike) give no recognition in their records or their reports, or in their discussion of financial policies, to the services rendered by hospital capital, as represented by interest on, or depreciation of, the value of the plant and equipment.[1]

[1] In most states non-profit hospitals are partially or completely exempt from taxation, the exceptions being California, New Mexico, and Wyoming. Insurance is usually recorded and reported as an "operating cost" rather than a

The reports of the "proprietary hospitals" administered as business corporations, however, usually include allowances for depreciation in their calculation of expenses; and occasionally this practice is followed by non-profit association hospitals. The accounts of the French Hospital at San Francisco are maintained in a manner similar to that described in the hypothetical case mentioned above. The plant and equipment of the French Hospital are owned by the French Mutual Benevolent Society and are leased to the French Hospital at an annual rental of $60,000 per year. The net book value of the plant and equipment on February 29, 1928, was $611,607.14. The Hospital, in addition to the rental, pays for heat, light, power, and necessary current repairs and maintenance. The Society absorbs the losses from depreciation, makes all expenditures for additions or improvements, and pays the property taxes and insurance.

Do the records and reports of hospitals which make no mention of interest and depreciation draw a true picture of the costs of the hospital care rendered by them? Obviously the representation is incomplete. It is true, to be sure, that many hospital trustees manage their institutions under conditions in which interest and depreciation need not be reckoned in the budgeting of current expenditures. But these conditions do not justify the ignoring of expenditures in estimating the total cost of hospitalization. All groups concerned with hospitals should consider the important fixed charges in the care of patients: (1) Proprietary hospitals must estimate fixed charges in order to establish fees sufficient to return a reasonable income to the investors. Usually interest and depreciation find their places in the operating reports of these hospitals. (2) In government hospitals, the departments concerned with funded debt and construction are often different from those receiving and disbursing cash for personal service and for consumed supplies. Governments, therefore, although meeting fixed charges from tax funds by the

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fixed charge. Because of the need for emphasizing interest and depreciation in hospital financing policies, the author will use fixed charges to include only these two items, unless otherwise specified.

process of maintaining interest payments and retiring bond issues, seldom include these expenditures among the costs of the hospital service to which they apply. (3) In the case of non-profit hospitals, it frequently happens that a philanthropist of a community has erected and equipped the hospital and presented it to the trustees free from all capital indebtedness. From the point of view of the community, however, interest and depreciation represent actual expenditures for hospital service. The services of hospital capital are not less valuable because they are paid for by taxpayers or by philanthropists.[1] It is sometimes stated that a hospital which utilizes plant and equipment on which there is no outstanding indebtedness can be operated at lower costs because it need not pay interest or repay the principal of the debt. Such a statement is equivalent to saying that it is cheaper to live in one's own house than in that of another, for, by so doing, one need not pay rent.

AN ILLUSTRATION OF FIXED CHARGES IN A CHURCH HOSPITAL

The problems of some non-profit hospitals have been very similar to those encountered in ordinary business enterprises. In such instances, particularly where the entire expenditures of each fiscal period must be met from the current receipts, the reality of capital costs is clearly emphasized. One church hospital visited by the writer owns land and buildings which were evaluated at $2,211,086.51, as of December 31, 1928. Of this total, $487,896.07 represented appreciation through appraisal of the land and buildings owned before the main hospital building was erected in 1927. There were outstanding $1,700,000 of 7 per cent mortgage bonds—approximately the total outlay for the existing plant and equipment. The interest payments on the fixed indebtedness in 1928 amounted to $134,044.36 (including amortization of $12,581 bond discount granted at the

[1] It is of interest to note that the financial reports of "voluntary hospitals" in England, Canada, and Australia often show allowances for depreciation in the expense accounts, although the percentage of income received from patients of "voluntary hospitals" is ordinarily much less than is paid by the patients to non-profit association hospitals in the United States.

time of issuing the bonds). In addition there were sinking-fund requirements for redemption of the bonds, which amounted to approximately $40,000.

The hospital, being located in California, was also required to pay general property taxes amounting to $20,729.42 in 1928. The current cash requirements attendant upon the ownership of the plant and equipment by this hospital were approximately $200,000 per year. The adult bed capacity of this institution was 277, so that the capital costs per year for each bed (whether occupied or not) were more than $700. The average occupancy during 1928 was 83 per cent, so that the annual fixed charges per occupied bed were well over $800, or more than $2.00 per patient-day of care. This hospital is not an expensive one from the point of view of original cost of construction; it is not operated for the profit of the trustees; but it has been financed under such conditions that the services of the hospital capital must be recognized by its administration as current costs of hospital care.

The operating costs in 1928, excluding taxes, interest, and depreciation, amounted to $604,569. This amount, had it applied to a hospital with no outstanding indebtedness, and in a state where non-profit hospitals were not taxed, would have been regarded as the total cost of rendering hospital care during the fiscal period. But the hospital under discussion finds it necessary to add to the amount stated above, not only a substantial sum for taxes, but also a reasonable allowance for depreciation and for the annual interest requirements. The retirement of the bonded indebtedness is not, of course, reported as an operating expense over and above the allowance for depreciation. The bond-redemption requirement emphasizes very sharply the fact that capital investment depreciates from obsolescence and from wear and tear, and that depreciation should be recognized in the records and reports of the hospital.

ARE FIXED CHARGES REAL COSTS?

To what extent does the exclusion of interest and depreciation from the costs of hospitalization understate the expenditures

made by a hospital or community, or both? Obviously, there is no point in a hospital's assessing itself or its patients with a burden which has already been borne by a philanthropist or a community. A discussion of allowances for interest and depreciation must be made in terms of the total expenditures by the hospital and public, and it must be recognized that expenditures by the public for plant and equipment need not be made a second time by the hospital as a business enterprise.

It may be stated that as a general rule hospitals have paid little or no attention to the fixed charges as costs of hospital care. Only a few have given any recognition to depreciation in the accounts, most of these being proprietary hospitals which were concerned with measuring the total business costs of the hospital care.

The money used to construct a hospital represents funds diverted from some other public or private service. It cannot be used to finance medical care in a clinic, to reimburse doctors for their time spent in teaching medical students, or to provide parks or schools or libraries. From the standpoint of the entire community, interest and depreciation on hospital capital represent expenditures for hospital care. It is immaterial to the community in the long run whether a hospital borrows and repays the capital or receives it as a contribution. But it makes a great difference in the short run, both to the community and the hospital. A hospital which must meet both its current and its capital expenditures through its earnings must necessarily charge rates which in total are sufficient to include an allowance for interest and depreciation. Bad debts or free service must be offset by profits on other patients or departments.

The fact that the community may be shouldering the burden of fixed charges does not, of course, absolve an individual hospital from rendering an accurate account of the capital investment under its control. Such a condition rather places a greater responsibility upon a hospital to observe and report the method and extent to which facilities are utilized. The author has asked many hospital superintendents why they gave no consideration

to the services of hospital capital in their records and reports. The replies have usually been one of the following: (*a*) "Such a procedure would swell the total costs of my hospital and make it appear in a bad light when contrasted with other hospitals which have relatively smaller investments or which omit such items entirely"; or (*b*) "It is inappropriate for a non-profit hospital administering donated funds to recover the full commercial cost of its services."

The first statement indicates a tendency to place figures above facts, and illustrates the need for an entire reconsideration of the concept of hospital costs. It is true that interest and depreciation are not usually factors over which a given hospital superintendent has had any control, and possibly such items should be clearly set off from the other costs of hospital care in the preparation of reports. But there is no logical reason why they should be excluded entirely.

The second objection brings up for consideration two very important aspects of depreciation and interest. In the first place, the mere measurement and recording of the financial value of the services of hospital capital does not necessarily mean that these amounts should be recovered through charges against patients served in the hospital. In fact, the purpose underlying this procedure might well be to relieve patients from this burden. In the second place, no allocation of the costs for the services of hospital capital can be made until the value of these services has been measured. There are cases in non-profit hospitals where certain classes of patients, or the purchasers of certain classes of service, are paying fees which cover by a wide margin the most liberal allowances for the proportionate share of their total costs. The charge may seem high in comparison with costs which do not include allowances for interest and depreciation. If it were known that these amounts were calculated in the establishment of such fees, patients might be made better satisfied with the rates which they pay.

INCREASED UTILIZATION IMPORTANT IN REDUCTION OF FIXED CHARGES

It should be repeated at this point that most hospitals are so constructed that the depreciation does not vary proportionately with the amount of service to patients. The floor space actually used for the bedrooms in which patients' beds are placed is a relatively small proportion of the total, at times not more than 20 per cent. A hospital recently constructed in a mid-western city of 300,000 inhabitants shows the following areas, expressed in terms of square feet, devoted to different features of the hospital: private bedrooms, 38,200: ward bedrooms, 6,800; stairs, elevators, corridors, offices, etc., 50,000; diagnostic and treatment rooms, 19,000; porches, kitchens, pantries, internes' quarters, storage, etc., 37,000; power plant, 40,000; nurses' home, 45,000. These figures were submitted by the architects designing the hospital.

It is impossible to avoid depreciation of hospital plant and equipment, for their serviceability is not prolonged through disuse. Hospital capital tends rather to become obsolete before it has been depreciated by wear and tear. Changes in technical equipment and in methods of hospital planning make it desirable to use all hospital facilities to the utmost extent consistent with a high type of hospital service.

The importance of complete utilization of capital investment may be further emphasized by a comparison of the value of the plant and equipment in a modern hospital with its annual operating costs. The ratios of annual operating costs to capital investment varied from 12 to 59 per cent for 59 non-profit association general hospitals, all with bed capacities within the range of 101 to 200. The median ratio was 29 per cent. These figures indicate that for this entire group of hospitals it would take about 3.4 years for operating costs of the services to equal the capital invested in plant and equipment.

Seventy-one local government hospitals reporting to the State Board of Charities of New York for the year ended June 30,

1928, showed an average ratio of operating costs to capital investment of 27 per cent. Two hundred and six private hospitals in New York showed a ratio of 32 per cent. The "statistical sheet" of the United Hospital Fund of New York showed annual operating costs for 1928 of approximately $23,000,000 and a total valuation of $95,000,000 for 57 hospitals as of December 31, 1928. Hospitals can increase the amount of service rendered without materially increasing the fixed charges. In this way the latter costs become a smaller proportion of the total. Other things being equal, it is desirable for hospital operating costs to bear a relatively high ratio to capital investment.

SUMMARY

Fixed charges, represented by interest and depreciation, are real economic costs of hospital service, even though they are often met by communities through taxation or voluntary contribution rather than from the fees charged to patients. Individual hospitals which are freed from the burden of recovering fixed charges from patients' fees or other current income are not thereby freed from responsibility for wise utilization of plant and equipment.

A careful estimate and report of the fixed charges annually incurred in a hospital's services would provide the basis for comparing total costs of hospitalization in different institutions and would prevent confusion where some hospitals, because of their indebtedness, are compelled to recognize such items. The general public, which in some way or another must pay both fixed charges and operating costs, would have a better understanding of hospital problems if the two classes of expenditures were clearly segregated. Hospital superintendents would find such data of great value when faced with the need of increasing the income from patients' fees, as will be pointed out in chapter xvi. An accounting for fixed charges does not imply that they should be met proportionately by patients cared for in a hospital. It merely makes possible the separate recognition of fixed charges so that they may be shouldered by that group most suitable to carry them, and not inadvertently laid upon individuals or groups who should not be required to bear them.

CHAPTER XIV

CAPITAL INVESTMENT AND OPERATING COSTS

The term "operating costs" will be used in the present chapter to include all costs of hospital service except the interest and depreciation on capital investment. But it will be shown that capital investment exerts a very important influence upon operating costs and that many of the individual classes of operating expenditures are directly affected by the size and proportions of plant and equipment.

Two types of operating costs will be mentioned in the following discussion: readiness-to-serve costs and service costs. Plant and equipment entail expenditures for heating, lighting, repairs, replacements, cleaning, insurance, etc. These costs are not increased or decreased in direct proportion to the number of days of hospital care rendered, but rather by the degree to which the hospital is held ready to serve patients. Such expenses may be called "readiness-to-serve costs," and they vary with the degree to which facilities are held ready for use rather than with the number of patients served. "Service costs" are those expenditures for labor and supplies used directly in the service to patients, and are those which tend to vary directly with the degree of utilization of capital investment. The influence of capital investment upon service costs is well understood by hospital administrators and will be mentioned but briefly in the latter part of the chapter. Most of the discussion will be devoted to readiness-to-serve costs.

READINESS-TO-SERVE COSTS

Once a hospital has made facilities available to the public, it can reduce its total costs but slightly when the plant and equipment are not actually in use. To be sure, not every hospital attempts to keep its facilities continuously ready for maximum

service; plant and equipment may be constructed avowedly in excess of the hospital's immediate needs. Expenditures for repairs, building maintenance, lighting, heating, administration, etc., are greater when it is expected that hospital beds and other facilities will be utilized to a greater degree.

What types of expenditures are to be considered as readiness-to-serve costs? At the logical maximum they include all expenditures except for medical and surgical supplies, patients' meals, patients' laundry, etc. At the minimum they include the costs of the administrative offices, board and room for certain employees, costs of heat, light, and power, and building maintenance and repair (in all cases including both salaries and supplies). Attempts have been made from time to time to segregate these readiness-to-serve costs under such categories as "building expenses," "house and property expenses," etc. Hospitals have not always recorded their expenditures uniformly, even under the same account titles; nevertheless, such groupings of costs represent a tendency to segregate the expenditures made to keep facilities in readiness to serve from those actually required in the rendering of professional services.

UNITED HOSPITAL FUND ACCOUNT CLASSIFICATION

The United Hospital Fund of New York requires member-hospitals to report their expenses in five categories: Administration, Professional Care of Patients, Departmental, General House and Property, Corporate. The Corporate expenses are the "fixed charges," such as interest and depreciation. These are not included as operating costs of the hospitals for purposes of calculating amounts due from the Fund for "free work" performed. The Administration and the General House and Property expenses are similar to those previously described as "readiness-to-serve costs," the former including such items as offices, clerks, stationery, postage, telephone, etc.; the latter, fuel, light, ice, ordinary repairs, furniture replacements, etc. The Departmental expenses cover the costs for the ambulance, housekeeping, linen, kitchen, laundry, provisions, etc. The ex-

penses for Professional Care of Patients include staff, nurses, orderlies, drugs, instruments, X-ray, laboratories, etc. The last two groups correspond in a measure to the "service costs," as previously defined.

It might be insisted that some of the "departmental" expenses illustrated above are in fact readiness-to-serve costs, since they are affected only slightly by the amount of hospital care given to patients. It is wished, however, merely to emphasize that this group of hospitals is attempting to segregate the costs of keeping the plant and equipment available for service from the costs incurred directly in the care of patients. The total hospital operating costs for 57 hospitals in the United Hospital Fund of New York, reporting 3,788,645 patient-days of service in 1928, were $29,391,394, classified as follows:

	Amount	Percentage
Professional services	$ 7,197,985	24
Departmental	9,123,926	31
Administration	1,978,425	7
General house and property	3,491,058	12
*Interest and depreciation	7,600,000	26
Total	$29,391,394	100

* Corporate expenses were not reported for this group in complete enough detail to justify their inclusion in the foregoing table. The plant and equipment was reported at a book value of approximately $95,000,000. Estimating a rate of 8 per cent on the reported values, to cover interest and depreciation, these "fixed charges" would be $7,600,000.

In the foregoing classification the fixed charges (Interest and Depreciation) and readiness-to-serve costs (Administration and General House and Property) combined are 45 per cent of the total expenses. For certain individual hospitals in the group, the reported fixed charge and service cost percentages were much higher than this average; for others they were much lower. The totals, however, serve to indicate the importance of the rôle played by fixed assets in the services of this group of hospitals.

BUDGET OF A CERTAIN NEW HOSPITAL

The recent experience of a new hospital in budgeting its expenditures at different prospective degrees of occupancy illustrates the points just presented. The hospital was completed in 1930 to accommodate 300 adult patients, and represents a total capital investment of $2,000,000. Its expenses were budgeted in some detail in anticipation of the growth of its service through a three-year period, as shown in Table XXXI. The budgeted costs are segregated into three main categories: fixed charges, readiness-to-serve costs, and service costs, the last mentioned group including those which vary with total service to patients. No attempt is made to present a complete analysis of the detailed items, and there might be wide difference of opinion as to the classification of certain types of expenses. For example, much of the expenditure for "professional and lay help: salaries, board, and room," might be classified as readiness-to-serve costs. The wages of the lay help engaged in cleaning, in painting, and in preparing meals are in large measure independent of the number of patients. The same relationship obtains with respect to much of the cost of nursing, namely, the salaries of supervisers and the maintenance of a certain number of pupil nurses. Strictly speaking, the only costs which vary directly with the professional services are the patients' meals, medicine, laundry, etc. Heat, light, water, and gas are charged against the hospital at a flat total rate, the new building being a unit of a larger institution supplying these services.

Table XXXI shows that, whereas income increases directly with the number of patient-days, the total costs increase relatively much more slowly. The explanation lies in these facts: (1) The estimated fixed charges are identical in amount in the budget of each of the three years, remaining at $160,000, or 8 per cent of the capital investment. (2) Those expenses classified as readiness-to-serve costs increase but slightly with the additional patients admitted to the hospital.

The greatest change appears among the service costs, although even in this group the established expenditures are not

proportionate to the days of bed care. Patients' meals, laundry, and medicine are in direct proportion to days of care. Salaries and board and room for professional and lay staff are estimated to increase only about 115 per cent, while the estimated

TABLE XXXI

ESTIMATED INCOME AND EXPENSE OF 300-BED HOSPITAL FOR THREE-YEAR PERIOD AFTER DATE OF OPENING

	First Year	Second Year	Third Year
Estimated daily census	51	132	258
Estimated total patient-days	18,615	48,088	94,005
Estimated income from patients	$133,000	$343,000	$670,000
Expenses:			
Readiness-to-serve costs:			
Purchased services: light, heat, gas, water	37,000	37,000	37,000
Building and equipment: upkeep and repair, insurance	46,000	46,000	46,000
Administrative: salaries and supplies	10,000	18,700	32,000
Total	$ 93,000	$101,700	$115,000
Service costs:			
Professional and lay-help salaries, board, and room	187,000	251,900	402,000
Patients' meals, laundry, medicine, etc.	28,000	71,800	140,500
Total	$215,000	$323,700	$542,500
Fixed charges:			
Interest and depreciation	160,000	160,000	160,000
Total	$468,000	$585,400	$817,500

advance in patient-days for the third year is 400 per cent over the first.

It so happens that the hospital referred to in this illustration received the plant and equipment free of debt from a wealthy contributor. For this reason it contemplates a policy by which income will just equal the readiness-to-serve and the service costs. On this basis the Budget for the third year, if realized, would yield a total income from patients of $670,500 and involve operation costs of $657,500.

READINESS-TO-SERVE COSTS PER PATIENT-DAY

Table XXIII sets forth the estimated income and the operating costs per patient-day for the three years, with the components of cost per day separated into readiness-to-serve costs and service costs. The cost per patient-day decreases from $16.54 to $6.99 with the increased use of the facilities. Likewise, each component of cost per day decreases with the increased occupancy of the hospital, the great relative changes appearing in the readiness-to-serve costs. These amounts are, of course, merely budgeted amounts, but they represent very clearly the influence which increased utilization of facilities exerts upon total and

TABLE XXXII

ESTIMATED INCOME AND EXPENSE PER PATIENT-DAY OF 300-BED HOSPITAL FOR THREE-YEAR PERIOD AFTER DATE OF OPENING

	First Year	Second Year	Third Year
Estimated income per patient-day	$ 7.13	$7.13	$7.13
Estimated cost per patient-day	16.54	8.84	6.99
Readiness-to-serve costs	5.00	2.11	1.22
Service costs	11.54	6.73	5.77

relative costs of hospital service, even when no inclusion of fixed charges is made.

ADDITIONAL COSTS OF INCREASED UTILIZATION

Once a hospital is serving patients to a certain degree of its capacity, the expense of accepting additional patients is often very slight. The fixed charges are unchanged in total amount, and most of the readiness-to-serve costs do not increase perceptibly. The additional costs, therefore, are often limited to expenditures for food, medical supplies, and a few special services not otherwise required. This fact is particularly important when one recalls that additional income may vary in direct proportion to the increase in hospital service.

A striking illustration of the low additional costs accompany-

ing increased utilization of facilities appears in the monthly statements of operating costs for a large hospital in the Central West, as shown in Table XXXIII. The institution is conducted under state auspices, with reimbursement being made by the various counties on behalf of patients unable to pay for their own care. The capacity in 1929 was 1,183 beds and 40 bassinets, a total of 1,223. The data in Table XXXIII show that when

TABLE XXXIII

University of Michigan Hospital, Comparative Income, Expense, and Patient-Days from July, 1928, to October, 1929, Inclusive

Month	Patient-Days	Total Operating Expense	Total Income	Net Profit or Loss (Loss in Italic Figures)
1928—				
July	31,965	$213,841	$204,793	*$ 9,048*
August	33,522	215,311	218,320	3,009
September	31,564	207,050	202,394	*4,656*
October	32,182	228,400	221,040	*7,360*
November	30,965	222,536	208,958	*13,579*
December	31,892	217,812	198,950	*18,862*
January	31,215	221,725	200,491	*21,234*
February	30,725	200,348	196,908	*3,440*
March	37,752	223,610	243,555	19,945
April	36,114	218,742	232,179	13,437
May	36,221	208,580	235,347	26,767
June	36,115	215,821	234,098	18,277
July	37,382	216,648	244,273	27,625
August	36,926	226,559	245,911	19,352
September	32,708	218,135	219,536	1,400
October	34,447	229,970	233,429	3,458

there are approximately 1,000 patients in the hospital, the net results of the services are a slight loss. As the occupancy increases, the monthly income exceeds the monthly expenses, so that with 1,100 or more patients in the hospital, the institution shows a net operating profit, which increases as occupancy approaches the rated bed capacity. Although income tends to vary directly with the number of patient-days of care rendered, the operating costs change but slightly with the variation in daily census. Among operating costs for this hospital there are

included insurance and the expenditures for replacing furniture and equipment, but no interest or depreciation on the capital investment in land and equipment. Readiness-to-serve costs are almost constant when a hospital reaches an occupancy of 80 per cent. The remaining 20 per cent of patients do not cause proportionate increases of hospital operating costs.[1]

UTILIZATION OF EQUIPMENT AND APPARATUS

Most of the foregoing discussion has implied that utilization relates primarily to bed capacity and to housing facilities, and is to be expressed in terms of the number of patients hospitalized during a given fiscal period. But the economic advantages of utilization pertain equally to medical and surgical apparatus and equipment, such as X-ray, operating room, delivery room, laboratory, and electrocardiograph. The costs of special technical assistants for these services, the necessary replacement of equipment because of obsolescence, the housekeeping expenses for special diagnosis and therapy rooms—these expenses are, to a certain extent, independent of the degree to which facilities are utilized. Six operating rooms used for three hours daily cost considerably more to maintain than three operating rooms in use for six hours daily. To be sure, there may be important medical reasons why a larger number of operating rooms should be available. On the other hand, certain hospital administrators have asserted that one of the important factors in hospital costs is the alternative periods of peak-loads and of inactivity in operating rooms. In some instances this condition might have been avoided by a more judicious use of scheduling of surgical operations, although, of course, such a procedure would require the active co-operation of the attending surgical staff.

What has been said with regard to operating rooms applies

[1] The basic figures for monthly comparison in Table XXXIII are, of course, those for daily census and for net profit or loss. The amount of income or expense during any given month are affected by the number of calendar days, as well as the percentage of occupancy. Variations in income and expense must be compared with each other rather than with daily census or total patient-days during a month.

with equal force to other diagnostic and therapeutic services. Some of the services, such as X-ray, laboratory, electrocardiograph, and physiotherapy, may be extended by making them available to physicians in private practice and to out-patients; and many hospitals have adopted this method of increasing utilization of their facilities.

CAPITAL INVESTMENT AND SERVICE COSTS

Service costs tend to vary directly with the number of patients served rather than with the total amount of capital investment or with the extent to which plant and equipment are held ready to serve.

A hospital which is inadequately supplied with plumbing facilities and with diagnostic and special utility rooms may involve high expenditures for nursing salaries or may reduce the quality of the nursing service by requiring that considerable energy be expended in walking between nurses' stations and patients' rooms. Similarly, the location of the general kitchen and the diet kitchens, as well as the arrangement of the facilities within them, may necessitate extra employees for the preparation of food. Plumbing fixtures that have been improperly arranged, or located in portions of the hospital such that the steam generated by the boilers is improperly used may greatly increase the costs for heat and power. Unduly large corridors require a greater amount of heat than those which might be more suited to the needs of the hospital; very high ceilings require additional maintenance expense in the form of cleaning as well as heating.

It is very important that a hospital be a well-proportioned unit, and that its various accessory services be of such proportion that they serve best the number of patients hospitalized within the building. The power plant, of course, can neither be too large nor too small; the operating rooms should neither be too few nor too many; the physiotherapy equipment should not be too elaborate, nor should it be inadequate for the needs of the community. The nurses' training school, plant, and

equipment should not be such that they can be conducted only at a heavy expense to the hospital.[1]

SUMMARY

Certain classes of hospital expenditure are almost entirely independent of the number of patients cared for during a fiscal period. They vary with the extent to which a hospital's facilities are ready to be used rather than with the extent to which they actually are used. These costs have been designated in the foregoing paragraphs as "readiness-to-serve" costs, and are to be contrasted with the "service" costs which vary directly, or nearly so, with the amount of hospital service actually received by patients. The readiness-to-serve costs are a substantial portion of the total costs of hospitalization, and their value is not fully realized unless extensively or intensively utilized. Unless hospital facilities are fully used, waste results; when they are fully used, economy results.

Many of the readiness-to-serve costs arise directly from the amount and proportions of capital investment. They are required for the heat, lighting, and cleaning of plant and equipment. The control of operating costs, therefore, may often center in the attempt to increase utilization of facilities rather than merely to conserve labor and supplies. When expenditures are unavoidable, the superintendent's only method of dealing with them is to spread their benefits among a large number. This policy results in lower costs to the hospital for services rendered, with the possibility of reduced fees to patients.

Furthermore, the hospital and its supporters reap substantial benefits through the additional income.

[1] For further discussion of the important relationship between hospital design and hospital service costs, the reader is referred to such works as *Modern Hospital Year Book*, particularly Vol. VIII; *The Twentieth Century Hospital*, by W. F. Stevens; *Hospital Organization and Management*, by J. E. Stone; *Modern Hospital Administration*, by Frank C. Chapman; and *Improved Methods in Hospital Management*, by G. W. Curtis.

CHAPTER XV

CAPITAL INVESTMENT AND HOSPITAL FUNCTIONS

The most characteristic hospital function is the bed care of patients, which includes the use of a bed, a supply of sufficient and appropriate food, and the administrations of a properly trained nursing staff. Such services, which at one time constituted almost the entire function of a hospital, are now supplemented by numerous "special services" for diagnosis and therapy. These services require equipment and personnel in separate portions of the hospital—the X-ray departments, physiotherapy departments, laboratories, operating rooms, and delivery rooms. The introduction of the specialized equipment for the care of bed patients has been accompanied by a tendency to make these facilities more available to the general public and the medical profession. Accordingly, many hospitals regularly provide out-patient services and carry on special activities in medical education and research. The capital investment in modern hospitals serves a variety of important medical functions, which may be classified under four headings: (1) in-patient care, (2) out-patient service, (3) education, (4) research. In some hospitals these four functions are financed by different methods and from different sources, such as patients' fees, voluntary contributions, and governmental taxation.

HOSPITAL FUNCTIONS SHOULD INFLUENCE COST ANALYSIS

Financing the various hospital functions requires income sufficient to meet both capital and revenue expenditures, and hospitals often look to different groups or use different methods in financing the different services. Because this is true, it is very important that both fixed charges and operating costs be apportioned among the various hospital functions. In this way,

patients' fees may be adjusted, voluntary contributions solicited, or taxes levied, in accord with any given policy as to who shall support certain kinds of hospital functions.

In a general way hospital reports show a realization of the variety of functions performed, particularly in the classification of income from patients' fees. Usually the "special service" charges are reported in a statement of income separate from the receipts for board and room. Occasionally, also, endowment earnings or voluntary contributions are specifically applied to the nurses' training school or some other activity. Hospitals as a rule are careful to classify and report separately patients' fees for the various classes of in-patient and out-patient service. To this extent, therefore, hospital administrators recognize in their financial reports the complex nature of hospital service.

Hospital reports of costs, however, have usually been prepared as if the total hospital service were homogeneous. If the costs of the various services were measured, classified, and reported with the same accuracy as income, important comparisons could be made which would be of value both administratively and financially. If it were determined that certain phases of in-patient care were costing more than the income received from them, an adjustment could be effected by increasing the fees, by attempting to reduce costs, or by searching for new sources of income from which to finance the particular services in question. The first requisite to financing is an understanding of the magnitude (the cost) of the project to be financed, whether it be in-patient board and room, X-ray diagnosis or therapy, out-patient service, or education and research. This understanding must be based upon a thorough analysis of the costs of the various hospital functions, including both fixed charges and operating costs.

RECOMMENDATIONS OF OFFICIAL BODIES

Attention has been given from time to time by official bodies to the problem of analyzing hospital costs, but most of the recommendations assume that in-patient services are homogeneous and can therefore be expressed adequately in terms of "patient-

days" of care. The Accounting and Records Committee of the American Hospital Association in 1922 offered a classification of expense accounts designed primarily to co-ordinate the varied administrative tasks of a hospital. The groups of expense accounts make possible the accumulation of total costs of hospital service, and the recommendations provide for dividing this total amount by the in-patient days of care, to secure the quotient "cost per patient-day." A careful record of the *income* from the various hospital services was suggested, but no discussion was given to the importance of separately calculating the *costs* of these same services.

Those familiar with *Bulletin No. 66* of the American Hospital Association will recall that the committee recommends the subtraction of the expenses for out-patient salaries and supplies before calculating "cost per patient-day." All other expenditures are assumed to be incurred for the one single and homogeneous type of hospital service, "in-patient care." The recommendations of this committee are an important forward step in the uniform classification of hospital expenditures and have many advantages for purposes of budgeting and departmental management. They make no provision, however, for comparing the income and expense of each service for which separate charges are assessed against the patient.

Measurement of the costs of the various hospital services requires an apportionment of the fixed charges and readiness-to-serve costs, as well as the "service costs" for such classes of hospital care as board and room, X-ray, operating rooms, etc. The selection of suitable bases for apportioning these costs requires a careful study of the conditions in each hospital. Some costs, such as interest, depreciation, heat, light, power, etc., may be apportioned according to the floor space occupied, value of the equipment employed or cubic contents of the portions of the hospital devoted to the various services, such as board and room, X-ray, etc.

The Department of Welfare of the State of Pennsylvania has for approximately seven years been using a classification of

accounts modeled more or less after that recommended by the American Hospital Association. The Department of Welfare requires that the total costs of in-patient service be allocated between private and semiprivate patients, on the one hand, and ward patients, on the other. A set of instructions, known as *Circular No. 7*, contains a formula for the allocation of the different kinds of expenses listed in the annual report. Yet, even with this effort to standardize accounting methods, the department cannot be sure that the formula will be uniformly applied in practice. Moreover, the field auditing staff of the Department of Welfare has neither authority nor facilities to investigate the correctness of the allocations by individual hospitals. The departmental representatives have limited their activities to auditing cash receipts and disbursements, classifying capital and revenue expenditures, and verifying the economic status of individual patients receiving free services.

PRACTICES OF CERTAIN HOSPITALS

Individual hospitals have from time to time established bases for allocating hospital costs to the various hospital services. An institution in Chicago, organized and operated under church auspices, allocates all expenses, including fixed charges, to the various services of the institution, namely, hospital service (board and room), operating room, radiograph, physiotherapy, medicines, laboratory. An eastern hospital analyzes its activities on a more detailed basis, separating the total "hospital-service" costs in terms of the following groups: private rooms, medical wards, surgical wards, obstetrical wards, and children's wards. These various services include board, room, and bedside nursing, which are included in the "room rates" for the respective classes of service. They may include certain "extras," depending on the policies of the individual hospitals. Special services are also segregated, and their expenses calculated independently. The tables on the opposite page show to what extent the various services are self-supporting in the two hospitals, according to their own methods of calculation.

REQUIREMENTS OF COST-ANALYSIS PROCEDURE

Do cost analyses of the kinds just described require great additional expenditure in the keeping of records and the preparation of reports? Not necessarily. In fact, an examination of the accounts of many hospitals has revealed that frequently records were already more than sufficient to provide the facts necessary to the analysis of the costs of various services. The

HOSPITAL IN CHICAGO

	Earnings	Expense	Net Earnings
Hospital service	$513,648.95	$432,623.09	$ 81,025.86
Operating room	90,760.37	71,730.14	19,030.23
Radiograph	44,160.00	32,509.74	11,650.26
Physiotherapy	6,758.25	5,703.91	1,054.34
Medicines	28,814.39	11,291.17	17,523.22
Laboratory	9,741.30	8,813.48	927.82
Total	$693,883.26	$562,671.53	$131,211.73

EASTERN HOSPITAL

	Earnings	Expense	Gain or Loss (Loss in Italic Figures)
Private rooms	$ 63,755.68	$ 62,555.82	$ 1,199.86
Medical ward	11,738.14	31,298.71	*19,560.57*
Surgical ward	31,196.23	55,807.63	*24,611.40*
Obstetrical ward	43,296.34	54,524.13	*11,227.79*
Children's ward	19,867.93	61,904.70	*42,036.77*
Surgery	17,688.25	12,250.99	5,437.26
Dispensary	5,959.72	13,064.83	*7,105.11*
X-ray	8,819.80	6,133.53	2,686.27
Pathological	7,395.00	3,426.15	3,968.85
Miscellaneous earnings	4,055.82	.....	4,055.82
Total	$213,772.91	$300,966.49	*$ 87,193.58*

only additional work necessary for satisfactory cost analysis is a careful study of the special conditions which obtain in the individual hospitals. On the basis of this information, the expenditures as ordinarily classified in the ledger accounts will provide the basic data for such analysis. Many institutions at the present time keep a close record of all cash disbursements, classified on the basis of commodities or services for which the expenditures are made, such as food, fuel, personal services, etc. Other institutions group the detailed expenditures into classes

which represent the departments which they serve, such as administration, purchase and issuance, nursing, laboratory. Any list or classification of expenses which gives a comparatively detailed list of the various objects of expenditures can be analyzed to reveal the costs of the various services rendered by the hospital. The bases for apportioning the costs of these services cannot be established categorically. A hospital which intends to analyze its costs in terms of special services may record its expenditures under the conventional classifications shown in its ledger during an entire fiscal period. With the aid of statistical data it can then prorate these expenses at the end of each period. Statistical data should include such facts as numbers of meals served to patients in the different departments, days of labor by groups of the personnel in various departments, days of nursing in various portions of the hospital, etc. Other facts which should be at hand include such items as the floor space devoted to each of the various services, value of equipment in portions of the hospital, etc.

The installation of a method of cost analysis requires both the attention and the understanding of the superintendent as well as of the accountant in charge of the actual records and reports. Cost analysis can easily become so detailed as to be unintelligible. Being unintelligible, it is without value as a basis for administrative and financial policies. Once the total costs of the essential hospital services have been calculated, it is a simple matter to divide each of these total costs by some significant "unit" of service. Cost of rendering room care may be expressed in terms of patient-days. The services of the X-ray department may be expressed as hours of service. Other units of service may be as follows: "tests" for the laboratory; "hours," or "operations" for the operating room; "cases" for the delivery room: "visits" for the out-patient department; "days" for the nursery.

IMPORTANCE OF OUT-PATIENT SERVICE

The discussion thus far has been concerned primarily with analyzing the total costs of in-patient hospital care. But out-

patient service is often a very important phase of a hospital's activities, and moreover, the plant and equipment devoted to out-patient service is ordinarily utilized jointly for in-patient and out-patient departments. If separate capital were provided for out-patient service, the expenditure would often be very great, and justified only if this service were very extensive or financed independently from separate funds. Where limited income is available, important economies are effected by utilizing the facilities of a hospital which might otherwise be idle. The capital investment in a clinic connected with a certain eastern university medical school is approximately $900,000. A clinic in the Central West has cost $400,000 but uses some of the facilities of the hospital with which it is affiliated.

The number of patients treated by an out-patient department is frequently greater than the number admitted to the beds of the institution during the same fiscal period. In 1928, there were 2,190 registered hospitals which reported to the American Medical Association that they conducted out-patient departments. The 57 hospitals supported by the United Hospital Fund of New York reported treatment of 273,902 in-patients (3,788,645 patient-days) during 1928. Forty-seven of these hospitals maintained out-patient departments, which treated 735,213 patients (3,246,294 visits) during the same period.

The very quantity of service itself justifies an analysis of the total outlay for the diagnosis and treatment of services to ambulatory patients. A segregation of the costs of these services would provide data to enlist the support of present and prospective contributors or to establish fees for patients able to pay for their care. Historically, the services of the out-patient department have been rendered almost entirely to patients who pay very small amounts, or nothing at all, for their medical care. The extension of this service in some cities to patients of moderate means has been accompanied by new methods of financing based upon costs and increased patients' fees rather than exclusively upon in-patient income or special support by the public. The treatment of patients in the ambulatory state is exceedingly

important. It may avoid or defer admission to a hospital, on the one hand, or may serve to follow up the benefits of hospitalization, on the other.

Out-patient service is in some respects similar to medical practice in a private physician's office, the essential features being the medical diagnosis and treatment by the attending physician. Bed care, diet, and nursing attention are secondary considerations.

NEGLECT OF OUT-PATIENT-DEPARTMENT ACCOUNTING

Most hospitals have as yet paid very little attention to the calculation of out-patient-department expenses. This service has been regarded as a side line of the hospital and has been subsidized from funds made available by, or for the care of, bed patients.

Certain hospitals, however, have been required to estimate the costs of their out-patient services. The United Hospital Fund in New York City has required participating hospitals to report separately the operating expenses for in-patient and for out-patient service. The costs of out-patient service for the entire group were reported in 1928 as approximately 14 per cent, with some hospitals showing costs as high as 25 per cent of the total. Subsidies for the out-patient services are made according to the reported number of "free visits, not to exceed an average cost of 60 cents per visit." The reported average costs per visit in 1928 ranged from $0.32 to $3.20. This variation is not to be explained so much by differences in the nature of the services rendered by the hospitals, or by variations in economic efficiency, as by non-uniform methods of accounting, as was revealed by a special investigation conducted by the United Hospital Fund in 1929. The institution reporting the lowest cost, $0.32, included none of the special diagnostic services in its reported costs of out-patient service. The hospital reporting the highest cost per visit served a small number of out-patients, each of whom required a great deal of attention and

special care. One of the hospitals in the group included in its per capita costs substantial expenditures for a pension fund for hospital employees. This study showed clearly that methods of accounting for the costs of out-patient services are not now on a comparable basis. If comparisons are to be made, the measurement of out-patient costs must be given special consideration, and other standards and methods for allocating total hospital expenses must be devised.

The *American Hospital Association Bulletin No. 66*, previously referred to, classifies as costs of the out-patient department only the salaries of full-time employees of the department, drugs actually consumed by or sold to patients, supplies utilized in treatments, and miscellaneous expenses. It does not suggest that fixed charges and readiness-to-serve costs should also be apportioned to the out-patient services.

Mention should be made of the fact that the services of physicians in hospital out-patient departments are usually rendered free of all expense to the hospital. When physicians are paid, the amounts are usually much less than the current rates for such services in private practice. This condition, coupled with the practice of disregarding overhead costs in the accounts of out-patient departments, has led to much confused thinking in hospital finance.

Out-patient service is often made possible only through close connection with a hospital. The necessary equipment and facilities could not be provided from the receipts of a separately organized dispensary, unless, of course, large subsidies were procured from the general public. Out-patient care, which both forestalls and follows up in-patient care, may be regarded as one of the major functions of the modern hospital. The tendency in some geographical areas is to make the service available to the general public on the same basis as in-patient care. If this tendency were further developed, it might effect lowered costs of medical service both to the hospital and to the public, as well as a more stable income for the out-patient departments.

MEDICAL EDUCATION AND RESEARCH

Previous discussion has frequently mentioned the fact that hospitals do not merely provide medical "care" but that they also contribute to education and research in medical and social sciences. Certain hospitals are owned or affiliated with medical colleges and have as one of their objectives the instruction of undergraduate and graduate medical students. In 1926 there were 316 "teaching-hospitals," according to records of the American Medical Association. In 1929 there were 629 hospitals approved for the training of internes, and 321 for graduate training in the specialized branches of medicine or surgery. Some expenditures of teaching-hospitals are, of course, intended primarily to serve the needs of medical students rather than of patients; yet in most cases the patients are charged fees for their care similar to those assessed in other non-profit association hospitals. The hospitals offer service in private and semi-private rooms and in wards.

Should the expenditures for medical education be segregated from the costs of medical care? This question becomes particularly acute when a hospital committee is attempting to co-ordinate its program with that of a medical school and when each project is separately financed and operating on an independent budget. A medical college and a teaching-hospital may be joint projects of a single financial program; hence it is important to know their separate costs.

The segregation of costs of education from costs of medical care is of interest to four groups: donors, educators, patients, and administrators. Donors wish to know for what purposes their funds are being utilized. A philanthropist who has established an endowment for "free hospital care" might object strenuously to having the funds diverted to the education of medical students. Similarly, another donor might be willing to reduce a deficit resulting from an excellent teaching program but would refuse stoutly to subsidize routine care of sick bed patients. Patients, on the other hand, are primarily concerned with the problem of getting well and have little enthusiasm for

the advancement of medical education. They may rightly object to paying a heavy tax for the privilege of being admitted to a teaching-hospital, although they often receive unusually efficient medical care in these institutions. Hospital administrators are materially interested in the costs of services rendered within their institutions. If total costs are high because of the special services connected with the teaching of medical students, a hospital superintendent aims to call this fact to the attention of trustees and other supporters. The whole policy of establishing fees is greatly affected by the costs of training students, but it is usually intended that patients' fees should not contribute even in part to medical education.

Very little has been done toward separating the costs of medical education and research from the costs of medical care. It sometimes happens that out-patient services are directly under the supervision and control of a medical college, while diagnostic and therapeutic facilities are used jointly by the hospital and the medical school. Frequently the medical college assumes administrative responsibility for such services as X-ray, physiotherapy, or laboratory service, the cost of which may or may not be included in the total costs of rendering the "hospital care." At a mid-western university the income from services of the X-ray department are credited to the medical college; and the X-ray costs, likewise, are entirely excluded from the reports of either the "clinic" or the hospital under control of the university.

At a western state university an attempt has been made to prorate certain of the hospital expenses against the budget for the college of medicine, but the authorities recognize that their basis for apportioning costs between the hospital and the medical school has been far from satisfactory. The office manager mentioned, in the following letter, several factors now covered by the hospital budget which are primarily valuable only as aids to medical teaching.

> For example, we maintain a maternity unit with a revenue equal to only 50 per cent of the cost, in order to provide clinical material for medical students.

The head nurse of every ward devotes a certain number of hours per day accompanying classes of medical students through the wards. We believe that part of the salaries of this group should be paid by the medical school. Our pathology department returns very little revenue; the cost involved in post mortem examinations might well be borne by the medical school.

At the present time the University Hospital pays for three-fourths of the heat, light, and power costs for its buildings. The other one-fourth is paid by the University, the assumption being that one-fourth of the space is occupied by the units which are strictly for the medical school. The University pays nothing for the maintenance of physical plant.

. . . . The Board of Regents have gone on record as wishing to assume the costs of medical education, and have on several occasions stated that they are particularly interested in protecting the patient from additional expense for medical education.

Similar experience and point of view appear in a letter from the director of an eastern teaching-hospital, who writes as follows:

Students acting as clinical clerks on the divisions are expected to examine patients. In the case of women patients, this calls for a nurse to chaperone. This adds to the duties of nurses on women's divisions and consequently requires more nurses, which brings about a greater cost for the care of these patients. On the other hand, students are able to do a certain amount of routine work which otherwise would have to be done by the interne or a nurse; this lessens the cost of care of patients. It is impossible to evaluate either of these factors; and yet, undoubtedly both operate to a certain extent on the cost of patients' care.

Clinical laboratories have been built larger because of teaching needs than they would have been if they were to be used only by the resident staff.

Each department in the out-patient department has a room set aside primarily for teaching, which adds to the cost of construction, maintenance, and operation; but, on the other hand, students studying in the out-patient department are able to take histories and make examinations of patients so that more patients are actually seen in the clinic than would be otherwise.

At a teaching hospital in New York City the director expressed himself in the following manner:

There is no question but that the hospital care of the patient is necessarily increased when you add the two other features, namely, education and research. There are many charges creeping into the care of patients which are hard to analyze when you add the other two features to your service. Some day we will try to have this worked out. Our accounting system, as now set up, will give some idea as to the costs of these three items. It means someone has got to be put on the job to break them down and properly allocate them.

NURSING EDUCATION

It would be possible to cite numerous other instances where the costs of medical care and medical education are combined in the activities of a hospital's in-patient or out-patient department. It is less marked in the education of internes than in the cases of undergraduate medical students. The problem reappears, however, in those hospitals which maintain schools for the training of nurses. In 1926 there were 2,155 training-schools reported to the American Medical Association, with an enrolment of more than 75,000. In 1929 there were 2,160 "schools."

Many hospitals actually regard the training-school as an economy in the care of patients, for the economic value of the student-nurses' services is considered in some institutions to be greater than the cost of their maintenance, allowances, and instruction. A nursing school, properly administered and offering the best type of training, may, of course, be more expensive than the services of graduate nurses.

From the standpoint of the hospital, the school of nursing is sometimes considered as merely a device by which nursing service is provided and not primarily as an educational institution with distinct aims of its own. There is considerable feeling among nursing educators, on the other hand, that a nurses' training-school should concern itself primarily with the education of women in the field of professional service rather than with the routine nursing care of patients in the hospital. If the latter opinion is to prevail, it will be necessary, so it is said, for nurses' schools to be supported in much the same way that educational institutions are generally supported. A request for financial

support will, of course, need to be accompanied by data on the costs of nursing education. The hospital service, during a period of training, is of course of decided value to the hospital; but the charge against the hospital for these services should not exceed their value, regardless of the total costs of nursing education.

The foregoing discussion of the relation of nursing service to hospitalization must be regarded as inadequate when one considers the importance of nursing care. It is introduced at this point merely to emphasize the importance of recognizing the need to consider separately the costs of nursing care and of nursing education. Much light should be thrown on this question by studies now conducted by the Committee on the Grading of Nursing Schools.

SUMMARY

The capital investment in hospital service is devoted to a complex joint venture. The various hospital functions often utilize the same capital investment; in fact, if this joint utilization were not possible, both scope and quality of medical service would be restricted. This interrelationship makes cost analysis both necessary and difficult if the various hospital functions—in-patient care, out-patient care, education, research—are to be adequately understood and supported.

A segregation of hospital costs predicates a definition of hospital functions as well as a technique for associating each hospital activity with the various functions to which it contributes. A bedside demonstration of nursing method may be advantageous to both patient and student nurse. A series of laboratory tests may serve to diagnose a patient's ills, to train a student in a method of analysis, and to accumulate data for research on a special problem in pathology. Before the cost of these tests can be apportioned among the three functions, a decision must be made as to the extent to which each function has been responsible for or has benefited from the expenditures.

How far should cost analysis be carried? Obviously no farther than is practicable, considering the advantages to be gained in economy of administration or improvement of financial policy.

Moreover, care should be taken to use a method which can be applied efficiently and which is suited to the types of data dealt with as well as to the personnel applying the technique. It is sometimes assumed that cost accounting possesses a mysterious technique which will yield results whether or not it is understood by the hospital management. No method of cost analysis will be more intelligible than the comprehension of those applying it, namely, the accountants and superintendents. This does not imply that medical directors should become cost accountants, but it does point to the need of a clearer understanding and recognition of the complex interrelated activities of a modern hospital.

CHAPTER XVI

CAPITAL INVESTMENT AND PATIENTS' FEES

It was mentioned in chapter xii that there were two important objectives motivating cost analysis. These were (1) an improved administration of hospital services and the more effective utilization of capital investment, and (2) an improved financing policy by better adjustment of income and expense. Chapters xiii–xv have placed primary emphasis on the first objective, with special reference to the rôle played by capital investment in hospital costs. Attention is now directed to the rôle of capital investment in hospital financing.

The two main sources of hospital funds, whether for capital or current expenditures, are (1) patients' fees and (2) public contributions, through large or small gifts, or through governmental taxation. Either or both of these sources may be drawn upon by an individual hospital, and the funds thus secured may be applied to either fixed charges or operating costs. Confusion as to how hospital receipts have been used has given rise to much discussion and misunderstanding between the hospitals and the groups providing the funds, namely, the patients (as such) and the community (voluntary contributors and taxpayers). The present study is, of course, primarily concerned with the relationship of capital investment (fixed charges) to patients' fees and to community support.

PATIENTS CLASSIFIED WITH RESPECT TO PAYMENT OF FEES

Hospital patients are sometimes classified as "free," "part-pay," and "pay," with respect to the fees paid for services received by them. The classification is not always based upon a careful definition of the terms, and has resulted in much difficulty in understanding certain problems of hospital finance.

There are some groups of patients who may be regarded as essentially "free." This "free" classification applies to most gov-

ernment patients, particularly those in the neuropsychiatric and tuberculosis hospitals. There are approximately 500,000 patients continuously in the various government hospitals, based upon 85 per cent occupancy of those registered in 1928. This would mean that there are more than 180,000,000 patient-days of care rendered each year which might be described more or less accurately as "free."

Some patients of government hospitals make contributions toward the financing of their hospital service, but the amounts are not large. Of 76 local government hospitals in the state of New York in 1927 which reported a total of 4,800,000 days of care to the State Board of Charities, only 347,000, or 7½ per cent, of the days of care were rendered to patients who paid something toward the cost of rendering this service. The total operating costs were $16,000,000, of which $871,000, about 5½ per cent, were recovered through patients' fees.

There are available approximately 75,000 patients' beds in proprietary hospitals, and it may be assumed that all of these beds are intended for full-pay patients only, whose total fees are sufficient to recover fixed charges and operating costs. There are, to be sure, instances where proprietary hospitals render medical care for which they are not fully reimbursed. Emergency cases may be handled for patients who are not able to pay the hospital; likewise, a patient may be unable or unwilling to pay the bill for his hospital care, even though admitted on "pay" basis. A certain number of cases are taken into a hospital where the avowed intention is to render services below the usual rates, particularly where a remission of part of the hospital fee may facilitate collection of a reasonable charge for surgery or medical care.

The patient turnover in the proprietary hospitals is generally higher than in the government hospitals, which are primarily for patients requiring custodial attention. Assuming that all proprietary hospitals are 70 per cent occupied throughout the year, the total patient-days of service rendered is about 19,000,000 annually.

Between the so-called full-pay class and the free class there is a large group of patients who, as a class, must be given part-pay status. These patients (as a class) do not pay amounts which would make it possible to recover the fixed charges and operating costs of the hospitals. They comprise the beneficiaries of the non-profit association hospitals, which have an approximate capacity of 250,000 beds. At a 70 per cent rate of occupancy in these hospitals, the total patient-days of care per year would be about 71,000,000. Although non-profit association hospitals usually serve groups of patients which represent each of the three classes—full-pay, part-pay, and free—all of their patients as a group must be regarded as part-pay, in view of the general practice of excluding fixed charges from costs of hospitalization.

Hospital administrators have almost unanimously assumed that the total costs of rendering hospital care were merely the operating costs represented by salaries and wages to employees, supplies consumed during a fiscal period, and services purchased from outside vendors. They have, almost without exception, excluded from their reports of costs, any mention of interest and depreciation on the invested capital. This practice varies sharply from the methods of private enterprise and appears naïve from the business point of view. The procedure is, however, much less absurd than it at first seems, inasmuch as most hospitals under non-profit auspices usually have the burden of fixed charges borne by the general public. It should not be assumed, however, that fixed charges are not "costs" of hospitalization, merely because they are separately accounted for (or ignored as the case may be) and because capital investment is provided without a view to business earnings. It is one thing deliberately to exclude fixed charges as an item affecting the policy of a given hospital. It is quite a different thing—and here hospital executives have frequently deceived themselves—to assume that fixed charges are not to be regarded as costs of hospital care. Fixed charges must be included as costs of hospitalization from the standpoint of general medical economics; but

an individual hospital may, as a practical expedient, arbitrarily exclude the item from its concept of operating costs.

PATIENTS' FEES AND OPERATING COSTS

At the present time patients in the non-profit association hospitals of many communities are not paying amounts equal to hospital operating costs, even excluding fixed charges. A discussion of whether or not interest and depreciation are costs must, therefore, be considered a mere academic one, from the point of view of financing hospital care by this method. A discussion of the proper amount to be assessed against patients might better face in the other direction, namely, toward the question of what part of the operating costs should in justice be borne by the general public.

The patients in hospitals which participate in the distribution of the United Hospital Fund of New York pay but two-thirds of the current expenses of the hospitals, excluding interest and depreciation. The other one-third is provided through earnings of invested capital or through gifts from the general public. These estimates are based on the 1928 "statistical sheet," which reports that in-patients and out-patients provided $16,817,178 of total "operating" expenditure amounting to $24,713,879. There were 57 hospitals included in this group.

In the sixty-second annual report of the New York State Board of Charities, 206 hospitals (some of them in New York City) reported total "maintenance" expenses of $37,946,492 for the year ending June 30, 1928. To meet these costs, there was $23,420,965 received from patients. In Philadelphia, in 1928, the patients of 52 non-profit association hospitals paid 59 per cent of the operating costs (Haven Emerson, *Philadelphia Hospital and Health Survey*, p. 626). The Cleveland Welfare Federation in 1927 granted funds to 14 hospitals, the patients of which paid 62 per cent of the total operating costs.

For the year 1927, for 147 hospitals in 39 cities in the United States where community chests grant funds to hospitals, patients paid 68½ per cent of the total operating costs, according to data

secured from the Association of Community Chests and Councils. In Wichita, Kansas, the receipts from patients were 95 per cent for 5 hospitals in 1928; in 3 Columbus, Ohio, hospitals there were 77 per cent; in 3 Lancaster, Pennsylvania, hospitals there were 76 per cent. The last three statements were secured from the Joint Committee of the Association of Community Chests and Councils and the Local Community Research Committee of the University of Chicago.

PAY-STATUS OF INDIVIDUAL PATIENTS

The relation of an individual patient's fees to the total cost of his own medical care may be different from that of the group of which he is a part. Hospital service is not homogeneous, and the various types of service are not evenly distributed among the individual patients. Individual patients have been classed as pay or part-pay on one of two bases: (*a*) whether or not they pay amounts equal to the established rates for services received, (*b*) whether or not their average payments per day of care exceed the average cost per patient-day for the entire services during the fiscal period. The first basis would be an admirable one if hospital charges were established with a definite relation to the presumed costs of providing the various services. As is well known, most institutions make but slight attempt to relate charges for their services to the costs incurred in rendering them.

It is generally assumed that private-room rates exceed cost, as do the fees for special diagnosis and therapy. Most patients receive a variety of services, some of which are priced above cost, others below. It is conceivable that a patient might pay a hospital's established rates for all services received, yet in fact be paying less than the hospital's operating costs.

The second basis is subject to a similar type of limitation, namely, that the total bills paid by a patient (whether at established rates or less) are not directly proportionate to his days of bed care. Some patients require extensive special services, the total fees for which may exceed those for board and room. The costs incurred in behalf of a patient, and the payments

made by him, often bear little relation to his stay in the hospital. Consequently it is irrelevant to compare his average daily payment with daily cost for all classes of patients. Pay status of an individual patient must, therefore, be related to the costs incurred in his behalf, or to the average daily cost for a homogeneous group, of which he is a part. It should not be determined by comparing the average daily fee assessed against him with the average cost per patient-day for all groups of patients and all classes of services.

The general rule that a patient is "part-pay" when his average daily payment is less than the cost per patient-day is at times modified in practice. Some hospitals have recognized that individual patients who receive none of the special diagnostic or therapeutic services might be in fact full-pay patients, even though their payments to the hospital were less than the average per capita costs. Accordingly, the rule is arbitrarily followed that patients hospitalized in private rooms will always be considered "full-pay." Others have adopted a converse rule, namely, that all patients housed in certain other types of accommodations will be reported as part-pay patients, regardless of the amounts paid by them to the institution.

These expedients sometimes avoid, and sometimes lead to, absurd classifications of individual patients. For example, in a mid-western hospital with a cost per patient-day of approximately $9.00, not including fixed charges, two patients were admitted to the same wing of the hospital, one in an $8.00 private room, the other in a bed in a three-bed room at a rate of $5.50 per day. The first patient had a mild cold and had come to the hospital for a rest and to avoid inconveniencing his family. During his stay he required no services for which extra charges were made, and at the time of his discharge he was assessed $8.00 per day, which was less than the average cost per patient-day in this institution. Had it not been for the custom in this hospital of reporting all private-room patients as full-pay, he would have been reported as a part-pay patient. The patient in the three-bed room was admitted for special observation and

diagnosis because of certain obscure internal disorders. During his four days of hospitalization, numerous X-ray photographs were taken and other special services rendered which accumulated to fees of $120.00. The total bill was $142.00, an average of $35.50 per day of in-patient service. This patient was reported to the board of trustees as a part-pay patient, in accord with a policy of putting all three-bed-room patients into the part-pay category. As a matter of fact, this patient's stay resulted in a substantial net-profit to the hospital.

COMMUNITY CHESTS AND PATIENTS' FEES

The determination of part-pay status lies at the foundation of much community support for hospital care to patients in non-profit association hospitals. Certain patients are unable to pay established rates or full costs for the hospital care they require, and are, at the same time, unwilling to apply to government hospitals for free medical care. The non-profit association hospitals accept these patients at rates which are below those necessary to recover the proportionate operating costs of the services to these groups. The community is then asked to provide the difference by voluntary contributions. In communities where chests or federations distribute charity funds, the hospitals are usually required to render a detailed account of the losses from these part-pay services, as well as from certain amounts of free work. For hospitals which do not receive community support in proportion to reported part-pay service, it is often considered desirable to publish these facts to enlist general sympathy and possibly to encourage financial contributions.

The Association of Community Chests and Councils, co-operating with the Local Community Research Bureau of the University of Chicago, attempted in 1928 to accumulate data concerning part-pay service in hospitals located in cities co-operating in the "Registration of Social Statistics." Upon consulting the American Hospital Association, they at first decided to base their registration upon the relation of a patient's payments to the average cost per patient-day in the hospital where he was

served. However, two conditions caused them to base their classification of part-pay patients upon the relation between a patient's payments and the established rates for the various services which he received. One was that in only two states was the cost-per-day basis used as a standard. The other was the fact that no uniformity was encountered in calculating the cost per patient-day against which the patients' payment was to be measured. The comparison of the patient's payment with the established rate was therefore accepted as the basis, although it was recognized that fees are not based directly upon costs.

SUMMARY

The measurement and record of fixed charges provides the basis for two very significant advantages in hospital financing. In the first place, it makes possible the inclusion of fixed charges in the establishment of fees for services rendered to well-to-do patients, and thereby justifies higher rates to a group who may be willing and glad to pay the full costs of their services. Such a policy not only provides additional funds for hospital needs but also commends itself as equitable. In the second place, an analysis of fixed charges sets forth clearly the need for public support, and may, therefore, result in voluntary contributions to meet either capital or current expenditures. Well-to-do citizens who do not use the hospital's facilities may in this way assume a share of public responsibility for patients whose fees are less than the total costs of the services they receive.

Whether or not fixed charges should be included in the costs to be borne by individuals or groups of patients is not a question of accounting but one of social policy. Patients' fees and community support combine to provide funds for both capital and current needs. The extent to which organized community support has provided for capital investment and the recovery of fixed charges will be discussed in the following chapter.

CHAPTER XVII

CAPITAL FINANCING BY INSTITUTIONS AND COMMUNITIES

Communities have assumed the burden of providing capital investment in hospitals, either through non-profit associations or governmental units. This fact has been demonstrated by data as to amount and distribution of capital investment. In most instances the financing of new plant and equipment has been achieved by such methods as seemed appropriate. Community drives have been made for numerous voluntary contributions. The interest of wealthy patients, who were prospective donors of large sums for buildings or other improvements, has been cultivated. Much capital has been provided indirectly through the unpaid services of nursing sisterhoods, which permitted the accumulation of surplus or retirement of debts. Each hospital has used the methods which seemed most practicable, making an effort to balance its need for community support in providing plant and equipment with that resulting from operating-cost deficits.

Within the last decade communities have tended to unify the appeals for contributions to the social welfare, and community chests have been established in nearly 300 of the larger cities in the United States. Of this group, something more than half make some annual contributions to hospitals. Inasmuch as the chests represent the community's effort to co-ordinate social services, some attention will be devoted to their attitudes and experiences with respect to capital financing.

COMMUNITY CHESTS AND HOSPITALS

Community chests have uniformly taken the stand that amounts gathered currently from public subscription should be applied to current needs of the community. They have argued

that obligations of the past (such as repayment of debt) and needs of the future (such as replacement or expansion of plant and equipment) should be met by other methods and under other auspices. This policy has resulted in the limitation of hospital support to deficits resulting from failure of patients' fees to cover operating costs. Three questions arise in this connection: To what extent are community chests following the policy which they announce? Are the hospital needs which are met by organized community effort the ones which are most important from the point of view of the hospitals? To what extent would organized community effort be appropriate in the provision of capital investment and the recovery of fixed charges?

INTEREST ON BORROWED FUNDS

It has been stated previously that community chests have announced the policy of aiding hospitals to render services to individuals or groups who cannot pay the full operating costs incurred in their behalf. They have ordinarily disclaimed any responsibility for failure to recover fixed charges and have usually required hospitals to omit such items in their estimates of needed funds. To this end, and in order to eliminate requests for community support in reducing operating-cost deficits resulting from poor management or indiscriminate charity, most community chests have required the submission of summaries of financial operations and of the amounts and circumstances of the part-pay service rendered.

Community chests generally insist that costs used for comparing the services of the different institutions entitled to community-chest support should not include interest paid on borrowed funds or depreciation of plant and equipment.

In practice, community chests have treated neither interest nor depreciation on bases consistent with their avowed policies. Many of them have allowed hospitals to include as current expenses the interest on funds actually borrowed, even though the "chests" may have denied the responsibility for raising the capital to repay the loans. Cash disbursements for interest on

borrowed funds are pressing requirements arising from legal obligations, and the interest payments are in fact fixed charges. Community chests have, therefore, aided hospitals to meet fixed charges when they had already borrowed money for expansion, even though they would refuse the hospitals permission to include interest on donated capital in the operating costs reported to them.

Some community chests have extended their aid only to hospitals unable to balance their cash budgets during a fiscal period, regardless of the amount of free work extended to patients. This practice has led to much confusion and is irrelevant to the policy of not supporting capital expansion and replacement. Funds paid to balance a cash budget, which includes interest on borrowed money, have the effect of paying fixed charges. The part applied to interest or to retirement of the debt helps to finance previous capital expansion. If no money had been borrowed, the total contributions would have gone to a depreciation fund to provide for future capital replacement. It is manifestly illogical to grant funds to one hospital which shows a cash deficit because of interest on bonded indebtedness, and at the same time to refuse funds to another institution solely because the plant and equipment are free of debt. This policy mistakes a fact for a principle and has aroused severe antagonism among hospitals which have been excluded from the distributions of the community chest's funds.

DEPRECIATION OF EQUIPMENT AND PLANT

The community chests ordinarily permit the inclusion of the depreciation of equipment as an operating cost, for purposes of determining the amount of support to which a hospital is entitled. The depreciation on equipment is, however, not reported to the community chests as "depreciation," but as "replacements." Almost without exception community chests have stated that "replacements" of equipment may be considered as operating costs for hospital care. It is, of course, necessary for a hospital to meet such costs as they arise annually. The de-

parture from the "letter" of the policy is, therefore, in strict accord with the "spirit" of aiding hospitals currently to render important social services.

A few community chests have frankly permitted hospitals to include depreciation of buildings in their operating costs, regardless of the cash budget situation during a fiscal period. A hospital participating in the "Fund" of a large western city has received large grants in recent years, even though its current earnings were sufficient to meet the cash requirements of each fiscal period. In New York City one of the beneficiaries of the United Hospital Fund receives funds annually for free service rendered, although all operating-cost requirements are met from patients' fees, endowment earnings, and other contributions. A certain other hospital in New York State has built up a depreciation fund which would not have been possible except for contributions of the community chest. A similar situation exists with respect to a well-known hospital in New Jersey.

DEFICITS

Much controversy has arisen over whether organized community support should be offered to subsidize free hospital services, as such, or whether it should be granted with relation to a hospital's net returns. Should a hospital which renders services to free or part-pay patients be entitled to community support, even though the losses are balanced by net gains on pay patients? Proprietary hospitals have been uniformly excluded from community chest distributions. Likewise, some communities have withheld support from non-profit hospitals which have been able to balance the operating-cost budgets through patients' fees alone. The superintendents of such hospitals may declare that their success is due to good management through successful proportioning of the profitable services and those operated at a loss. The practice of basing grants upon net financial returns rather than volume of free service encourages, so they say, the tendency to spend money recklessly or to issue incorrect reports in order to share in the community fund. To the extent that

such results follow, the policy tends to defeat its primary purpose.

There is no logical reason why a hospital should not receive support for its free services, even though total earnings suffice to recover operating costs. The policy must be regarded as strictly pragmatic, on the theory that profits on a limited number of patients or services are being substituted for a wide distribution of the burden throughout the community.

AMATEUR TAXATION

As has been illustrated above, some hospitals have not relied entirely upon the generosity of the public to make good the deficits incurred in rendering free or part-pay service. They have assessed fees against certain groups of patients, or for certain types of services, which were considerably greater than the costs of rendering these services. This practice is not unlike, in its effect, the sliding scale which seems to characterize the establishment of surgical fees. It is well known that certain hospital services are presumably offered at rates well above their costs, usually services availed of only by well-to-do patients. On the other hand, well-to-do patients have been excluded from purchasing other services known to be offered at prices equal to or below their presumed costs. In this way, certain patients have been compelled to make contributions to the charitable services of the hospital. The justification of the practice is said to lie in the net result, and many hospitals have prided themselves on their gains from this practice, which is, in effect, a type of amateur taxation.

Whether non-profit association hospitals should be encouraged to follow the practice just described is a matter well worth consideration. In the first place, it is not the function of a hospital, in its rôle as a charitable corporation using donated funds, to sell services at a profit. The only justification for such a policy is the fact that funds are thereby secured on an equitable basis, which will be available for continued or expanded charitable service. But is the practice equitable? The responsibility for

supporting free hospital service is the responsibility of an entire community, not of those who chance to be patients in the respective hospitals. This method of meeting costs of hospital free service, particularly where community support is necessary in addition, has caused much misunderstanding. The patients in the "profitable" rooms are members of the same economic group that provides the voluntary contributions. Their memories of a large hospital bill often loom larger than the needs of the other patients unable to pay the costs of their services. The mixture of compulsory and voluntary philanthropy has not always been a happy one.

HOSPITALS AND CAPITAL NEEDS

Are the needs which are being met by organized community efforts the most important ones from the point of view of hospitals individually or in groups? Hospitals are, of course, only one class of numerous types of community-chest beneficiaries. Moreover, they represent a class which is unique in two respects: first, they require large amounts of invested capital; second, large proportionate amounts are received from beneficiaries for services.

Data procured by Michael M. Davis and cited in the February, 1929, issue of the *Modern Hospital* indicate that during the ten-year period, 1918–27, inclusive, the hospitals participating in community-chest distributions in 131 cities increased their capital investment by $12,000,000 annually, whereas receipts from chests were less than $7,000,000 per year. This increase did not include the expenditures for replacements of plant and equipment which depreciated or were discarded during this time, and did not allow for interest on invested capital. Other statistics of the comparative expenditures for fixed charges and capital expansion revealed the fact that capital funds were the primary needs of these hospitals. Community-chest grants, in fact, were in 1927 but $5\frac{1}{2}$ per cent of the operating costs of the hospitals previously mentioned.

In only a few cities has organized community effort concerned

itself with the capital needs of hospitals. The community has left in the hands of the individual hospital the solicitation of memorials, legacies, and smaller contributions with which to establish, replace, or expand plant and equipment. During recent years, when capital investment has been rapidly expanding, the need for capital has overshadowed the need for funds to recover operating-cost deficits. But only in a few cases, and in some of those inadvertently, have community chests contributed to or directed capital investment in hospitals.

COMMUNITY CONTROL OF CAPITAL INVESTMENT

To what extent would organized community effort be appropriate in the provision of capital investment or the recovery of fixed charges? In the past the capital needs of individual hospitals have been irregular and imperative. Communities with no hospitals followed the most practical methods available in securing plant and equipment. Some erected government hospitals; others offered subsidies to religious nursing orders; still others organized independent hospital associations. In some instances, groups or cliques of citizens vied with each other in the race to provide hospital service. Expansion and improvement were carried on in an attempt to meet pressing needs of the respective communities.

As the original capital investment becomes established, and the quality of plant and equipment reach acceptable standards, capital requirements of hospitals and communities will be confined more or less to regular replacements. They will include the purchase of new classes of equipment, the remodeling of the plant, and the expansion of bed capacity. Within certain limits, these needs can be budgeted, and thereby brought within the current estimates of governmental units or community chests. Co-ordinated fund-raising activities might, therefore, also result in a better proportioning of the capital investment among the special medical services. Not only could hospitals themselves be specialized, either in medical services or in the service of geographical areas, but they could be co-ordinated with the

existing program of public health and education and of outpatient services.

It has been observed repeatedly in foregoing chapters that hospital capital investment, in addition to being irrecoverable for other uses, also entails substantial readiness-to-serve costs. This requires careful preliminary analysis of the medical needs of the community before a new hospital is constructed and equipped or existing facilities expanded. In this way unnecessary fixed charges may be avoided. A proper co-ordination of hospital facilities in the community and a proper distribution of patients to hospitals, both adequately and economically equipped for the specific care required, would increase the utilization of capital investment and distribute the burden of hospital service over a wider area.

PART IV
SUMMARY AND CONCLUSIONS

CHAPTER XVIII

GENERAL FACTS CONCERNING CAPITAL INVESTMENT IN HOSPITALS

The final section of this volume will summarize the data which have been previously presented, and will state certain conclusions which have been drawn from them. The present chapter will be devoted primarily to a restatement of some of the more significant facts and relationships in Parts I and II. In most instances the summary will follow the sequence of the chapters.

1. *The capital investment in hospitals as of December 31, 1928, is approximately $3,100,000,000.*—It is distributed among more than 7,300 hospitals with a total capacity exceeding 905,000 beds and 44,000 bassinets. The average investment per hospital is about $425,000, and the investment per bed approximately $3,500. Many groups of hospitals require much higher averages, and the range of variation among individual hospitals is very great. The capital investment per person in the total population is approximately $25.

2. *Nearly all of the hospital capital has been provided on a non-profit basis.*—Ninety-one per cent of the total capital investment has been provided by the general public, in about equal proportions through governmental units and non-profit associations, respectively. Among the 6,852 hospitals "registered" in 1928, with a capital investment of $3,090,123,000, the total valuation was distributed as follows: governmental hospitals, $1,416,500,000 for 1,813 hospitals and 567,434 beds; non-profit association hospitals, $1,404,400,000 for 2,604 hospitals and 247,970 beds; proprietary hospitals, $269,168,000 for 2,435 hospitals and 77,530 beds.

3. *About two-thirds of the capital investment, $2,000,000,000, has been devoted to hospitals for acute diseases and conditions.*—General and special hospitals combined represent 77 per cent of

all hospitals and contain 46 per cent of all beds. General hospitals comprise a capital investment of $1,848,766,000, or 60 per cent; special hospitals, $167,479,000, or 5½ per cent. General hospitals number 4,538, with a total bed capacity of 370,613, or 42 per cent of all those in registered hospitals. The average bed capacity is 80; the investment per bed, $5,000; and the investment per hospital, $400,000. The special hospitals, other than for mental and tuberculosis cases, are about 700 in number with 43,000 beds. They are smaller than those for general care, averaging about 60 beds per institution and $230,000 in investment per hospital. The investment per bed is $3,900.

4. *Hospitals for nervous and mental cases represent 27 per cent of the capital investment, $820,000,000.*—The mental hospitals are few in number, but many are very large. There were only 553 registered in 1928, with a bed capacity of 393,737, 44 per cent of the total. The average bed capacity is 712; the capital investment per hospital, $1,400,000; and the investment per bed, $2,200.

5. *Tuberculosis hospitals are a small but important fraction of the total capital investment.*—There were 507 tuberculosis hospitals registered in 1928, with a total capacity of 62,000 beds and a capital investment of $194,000,000. The investment per hospital is $373,000; and the investment per bed, $3,100.

6. *Capital investment is concentrated in the large hospitals.*—Only 1,567 hospitals, or 23 per cent of those registered in 1928, contained more than 100 beds each; yet this group represents $2,390,000,000, or 77 per cent of the total capital investment. The 5,285 hospitals with 100 beds or less average $135,000 investment per hospital; the hospitals with more than 100 beds average more than $1,500,000 capital investment. The lowest average investments per bed obtain for the very small and the very large hospitals. The 2,453 hospitals with 25 beds or less are almost all intended for general medical and surgical care, yet represent only $2,700 per bed, a figure indicating limited medical facilities. The 185 hospitals with more than

1,000 beds each are almost exclusively for mental cases, where custodial rather than medical features characterize the services. The investment per bed for this group barely exceeds $2,000. Between these extremes are relatively higher investments per bed, with a maximum of $5,300 for those ranging from 200 to 300 beds.

7. *Capital investment is not evenly distributed throughout the United States.*—The North and Middle Atlantic states contain a higher capital investment per population than the other geographical areas. The investment per capita in "local" hospitals for acute diseases and conditions varies as follows: North and Middle Atlantic, $25; Far West, $19; Central West, $16; Central Northwest, $14; South and South Atlantic, $6. The population per bed for the geographic area is: Far West, 232; North and Middle Atlantic, 245; Central Northwest, 317; Central West, 318; South and South Atlantic, 539.

8. *Governments control most of the capital investment devoted to services requiring long periods of hospitalization.*—Government hospitals represent total invested capital estimated at $1,416,540,000. This amount includes 95 per cent of the capital invested in nervous and mental hospitals and three-fourths of that for tuberculosis care. Conversely, most of the capital in government hospitals, about 70 per cent, has been provided for nervous and mental and tuberculosis patients. The governments play a relatively small rôle in providing general hospital care, the capital investment in all government general hospitals being but $416,000,000 in a total four and one-half times as great. The average investment per bed for all government hospitals is about $2,500.

9. *The Federal government has provided a variety of hospital services.*—The investment in the 294 federal hospitals, with their 61,765 beds, is estimated at $200,000,000. Of this amount, $120,000,000 is concentrated in those for general care of former and present members of the army and navy. Hospitals for nervous and mental cases and for tuberculosis patients represent investments of approximately 40 and 30 millions, respectively.

The average bed capacity of federal hospitals is 210; the investment per bed, $3,200; and the investment per hospital, $680,000.

10. *The states dominate the field of hospitalization for nervous and mental cases.*—States have invested $660,000,000 in their 223 nervous and mental hospitals, which is 83 per cent of their $793,000,000 of capital investment in hospitals, and 80 per cent of all capital devoted to nervous and mental care. Relatively smaller amounts, about $50,000,000 in each case, have been applied to 51 hospitals for general care and 60 hospitals for tuberculosis patients. The average bed capacity of state hospitals is 669; the investment per bed is $2,150; and the investment per hospital, $1\frac{1}{3}$ millions. Some of the general hospitals are associated with medical schools and accept substantial numbers of paying patients from the general public.

11. *Counties have distributed their capital investment of $187,000,000 among the various classes of medical service.*—There were 489 county hospitals, with a bed capacity of 63,231, registered in 1928. The average bed capacity was 129; the investment per hospital, $383,000; and the investment per bed, $3,000. The hospitals were distributed widely among the 3,076 counties. The 221 general hospitals were small ones, although a few large hospitals tended to raise the average. California contained 43 county general hospitals in 1928. The 53 hospitals for mental cases with total bed capacity of 19,543 were concentrated in a few states. Of these hospitals 33 were in Wisconsin. Hospitals in four states, Wisconsin, Michigan, Pennsylvania, and New Jersey, contained more than 90 per cent of the beds. There were 26 states from which at least one of the 154 county tuberculosis hospitals was registered.

12. *City hospitals are devoted to general care and to contagious cases.*—The $211,000,000 capital is invested in 372 city hospitals, with a bed capacity of 65,126. Sixty-five per cent of the capital is in 235 general hospitals, and about 12 per cent in 85 special hospitals primarily for isolation of contagious cases. A total of $23,000,000 is concentrated in 9 very large hospitals for nervous and mental cases. Much of the bed capacity and

capital investment provided by cities is in the North and Middle Atlantic states.

13. *City and county hospitals are few but are significant as joint-ventures for hospitalization.*—There were 63 hospitals under such auspices in 1928, and an increased number in 1929. The total investment in 1928 was $25,000,000, about 70 per cent being in 33 hospitals for general care.

14. *Non-profit associations have provided the majority of capital for hospitals serving acute cases.*—There were 2,604 such hospitals in 1928, with 248,000 beds and a total investment of $1,404,000,000. Sixty-five per cent of all investment in general and special hospitals is under private non-profit auspices. Conversely, non-profit associations have concentrated the bulk of their total investment, 94 per cent, in these two fields. Independent associations and churches control the major portion of all private investment on a non-profit basis. Fraternal orders have invested $20,000,000 in 87 hospitals, with 5,298 beds registered in 1928.

15. *Independent hospital associations control more than $700,000,000 of capital investment.*—There were 1,461 independent hospitals with a total capacity of 128,059 beds in 1928, and an estimated capital investment of $706,734,000. The average bed capacity is 88; the investment per hospital, $500,000; the investment per bed, $5,500. Eighty-three per cent of the capital investment is in general hospitals; 10 per cent, in "special" hospitals; and about 3 per cent each in those for mental and tuberculosis cases. The average investment per bed is nearly $6,200 for general hospitals, with a wide range for individual hospitals, exceeding $15,000 for certain ones located in the larger cities.

16. *Church hospitals rival the independent associations in total bed capacity and capital investment.*—The 1,056 church hospitals, with 114,613 beds, represented a capital investment of $677,137,000 in 1928. The average bed capacity is 109; the average investment per hospital, $641,000; the investment per bed, nearly $6,000. The concentration in general-hospital facilities is very great, 93 per cent of the capital being devoted to this service, $3\frac{1}{2}$ per cent to special hospitals, and the remainder to mental

and tuberculosis cases and to residents of church "institutions." Catholic nursing orders controlled 627 of the church hospitals registered in 1928.

17. *Only about 9 per cent of the capital investment in hospitals has been provided on a business basis, that is, in "proprietary" hospitals.*—The total of $269,000,000 is divided among 2,435 small hospitals, with a total bed capacity of 77,530. The average investment per bed is about $3,400; and the investment per hospital, $110,000. The 1,698 individual or partnership hospitals average but 25 beds per hospital, with a total capacity of 39,333 and a capital investment of $115,817,000. The 580 incorporated proprietary hospitals contain 31,150 beds and a capital investment of $128,227,000. The 157 industrial hospitals containing 7,047 beds are primarily for emergency service. Only 12 exceed 100 beds in capacity. Most of the proprietary hospitals, 1,877, are for general medical and surgical care.

18. *The endowment capital of all hospitals is approximately $437,000,000.*—Endowment income finances the equivalent of continuous care for about 15,000 patients in general hospitals. This is slightly more than 2 per cent of the average number of patients continuously hospitalized. It is about 3 per cent of the bed capacity of government hospitals, which are essentially for free patients. Ninety-five per cent of the estimated endowment capital, or 419 millions, is controlled by non-profit associations. Only 1,060 hospitals own endowment assets in excess of $5,000. Less than 200 of these control as much as $500,000.

19. *Endowment capital is concentrated in the larger and older hospitals in the metropolitan areas.*—Among 548 hospitals with a total endowment of $278,000,000, more than 40 per cent was owned by 31 institutions, each of which controlled $2,000,000 or more. Sixteen of this latter group were affiliated with medical schools. Of 125 hospitals known to possess $500,000 or more endowment, 61 were in New York, Boston, Philadelphia, and Chicago. Seventy per cent of all endowment capital is estimated to be concentrated in the North and Middle Atlantic states.

Only a few hospitals west of the Mississippi River or south of the Mason-Dixon line have any endowment.

20. *Hospitals as a class are not endowed to a sufficient degree to be materially affected in financial policy by endowment capital.*— The endowment necessary to provide operating costs for a single bed is approximately $30,000, estimating an annual rate of $1,-500 per bed. Only a few hospitals control endowment capital in these proportions. At an annual operating cost of $1,000 per bed, there would be needed at least $18,000,000,000 to finance all hospital service in the 7,000 hospitals by this method. The income on existing endowment capital, if distributed among all American hospitals, would provide approximately 8 cents per patient-day. If the existing endowment capital were to be relied upon exclusively for the support of hospital operating costs, it would be consumed within six months.

CHAPTER XIX

MAJOR POINTS IN CAPITAL VALUATION AND ACCOUNTING

This chapter represents a summary of the main points discussed in Part III. It deals primarily with problems of the valuation of capital investment, and with methods of accounting for its services in the administration of hospitals and the procurement of funds.

1. *Replacement cost is the most significant basis for comparing or estimating capital investment in hospitals.*—Appreciated land values may point to the desirability of changing hospital sites in the interests of improved and expanded hospital services. Replacement cost of land is equivalent to market value, but there may be instances where it is impracticable to realize such a price through disposal of the site. For buildings or equipment, replacement cost is the price of procuring facilities which are the equivalent for purposes of hospital care. Buildings and equipment should not be underestimated merely because of low costs of construction or long years of service.

2. *Most of the hospitals registered in 1928 were founded since 1900, but most of the available bed capacity is in those established before that date.*—Of the hospitals registered in 1928, 4,782 had been established since 1900. These hospitals contain 330,458 beds, with an average capacity of 70 beds. The 2,070 founded by 1900 or earlier contain 562,476 beds and an average bed capacity of 225. The rate of founding for new hospitals (still registered in 1928) was 56 per year from 1876 to 1900, 174 per year from 1901 to 1925, 144 per year from 1926 to 1928. The average bed capacities of registered hospitals founded during the periods 1876–1900, 1901–25, 1926–28, are 214, 72, and 44, respectively.

3. *Present-day investment in hospital construction is intensive rather than extensive.*—Capital investment is being devoted to the

enlargement or improvement of existing hospitals rather than the establishment of new ones. Of 85 hospital construction projects reported in the professional journals during the last quarter of 1929, only 24 involved the foundation of new hospitals. A great many hospitals are spending large sums to replace or improve existing facilities, without proportionate increasing bed capacities. At least 847 construction projects were undertaken in 1929 in the 37 states east of the Rocky Mountains, at a cost of $124,504,000, excluding land and scientific equipment. During 1929 total "registered" bed capacity increased by less than 15,000—most of the increase being in state mental hospitals. The number of new hospitals established in 1929 was less than those removed from the register because of abandonment, merger, or reclassification. From the years 1923 to 1927, the average investment per bed in state-aided hospitals in Pennsylvania increased $1,010. An increase of $2,798 investment per bed occurred for 13 New York and Brooklyn hospitals from 1912 to 1927.

4. *Costs of hospital construction have increased materially in recent years.*—This condition has resulted not only from changes in costs of labor and materials entering into construction costs but also from rising standards of hospital services. Minimum standards for adequacy of plant facilities and for medical and surgical apparatus are higher than in former years, now requiring from $3,000 to $10,000 per bed depending upon the geographical location, number of beds, and the scope of services for which the capital is invested. Lower investments suffice for mental and for tuberculosis hospitals. The capital investment per bed is usually three or four times the annual maintenance costs per bed. The amount of capital investment in a modern hospital justifies careful analysis of hospital costs. Such analysis would serve two main purposes: (*a*) it would aid in the better utilization of capital investment by making possible the comparison of various methods, departments, or processes; (*b*) it would aid in capital financing by presenting a clear picture of the ways in which contributed funds and patients' fees were being applied.

5. *"Fixed charges" (interest and depreciation) are genuine costs of hospital service, although not always considered as such by individual hospitals.*—Data for comparing the total costs of hospital service rendered by individual hospitals must include allowances for interest and depreciation. Many hospitals are freed from the full responsibility for interest earnings on, and the repayment of, their capital investment. But it should not be assumed that these hospitals thereby incur lower costs of operation; for these facts mean merely that the fixed charges are being borne by the public, either through taxation, numerous contributions, or large grants. Reasonable allowances for fixed charges are 5 per cent for interest on total capital investment, $2\frac{1}{2}$ or 3 per cent on the buildings, 10 per cent on furniture, and from 15 per cent to 25 per cent on medical and surgical apparatus. An investment per bed of $6,000 involves fixed charges of approximately $480 annually per available bed. This means fixed charges per patient-day of $2.00 for such a hospital occupied to two-thirds of its capacity.

6. *Hospitalization involves important readiness-to-serve costs, many of which arise directly from capital investment.*—Certain expenses are necessitated by the mere fact that a hospital is held in readiness to serve a given number of patients. Some of these, such as heat, light, and power, cleaning, and maintenance of lay personnel, are affected by the amount and proportions of the capital investment. A minimum estimate of the readiness-to-serve costs in 57 New York hospitals in 1928 showed them to be more than one-fourth of the operating costs. The budgets of a 300-bed hospital showed an almost negligible increase in total readiness-to-serve costs when occupancy increased from 132 patients to 258. The readiness-to-serve costs per patient-day were reduced from $2.11 to $1.22. The large proportions which readiness-to-serve costs assume in most hospitals point to the need for increased utilization of hospital facilities. Additional patients often can be cared for at surprisingly low additional costs. A large general hospital with 1,200 beds estimated its per capita cost at about $7.00 per day when the patient census

was 1,000. The average per capita cost dropped to $6.50 when 1,100 or more patients were cared for, and the additional daily cost for each patient was less than $3.00.

7. *Hospital design and proportions often influence the service costs necessary in the care of patients.*—Even those salaries and supplies which are directly concerned with patient care (service costs) may be influenced in their total amount by the layout of the hospital facilities. A wise arrangement and proportioning of capital investment in other parts of the hospital often result in important economies of operation, as well as release funds for other purposes. Moreover, increased utilization may result in economies from large-scale purchases of supplies and may provide better service because of the opportunity for training a complete staff.

8. *The service of a modern hospital is complex.*—In-patient service involves special services which are independent of the days of bed care. A group of 85 similarly classified hospitals showed average receipts from special services ranging from 10 to 60 per cent of the total receipts from patients. The average for the entire group was 22 per cent. In each case, the capital investment in equipment for special services was a substantial proportion of the value of facilities used for domiciliary care. These conditions make it inadequate, as well as misleading, to express a hospital's activities in terms of a single unit of activity, such as a patient-day of care. The practices of most hospitals in classifying income show their awareness of the varied activities of a hospital. But cost analysis has not kept pace with the trend in hospital service. Individual hospitals have attacked the problem of adequate cost analysis in order that economically justifiable fees could be established or community support be solicited for special services. Certain official bodies have required that in-patient costs be analyzed in terms of patients occupying various classes of rooms, but they have not provided a system for establishing or verifying the estimates.

9. *Segregation of the costs of other hospital functions—out-patient service, medical and nursing education, and research—is*

a prerequisite to the best results in hospital financing.—The various hospital functions may be financed, in part at least, by different methods or groups. It is impossible to budget the capital and current needs of each function without an estimate of its costs. The capital investment in out-patient departments is often used jointly in the care of bed patients, but some large hospitals use separate buildings which have cost more than $500,000. Forty-seven hospitals in New York and Brooklyn served nearly three times as many patients in their out-patient departments as were admitted for bed care in 1928. Much of the investment in facilities for medical and nursing education is used jointly by the schools and hospitals. Moreover, the functions of medical education and research are often merged with the treatment of hospital patients. A few medical schools and teaching-hospitals have attacked the problem of segregating education costs, but none has carried the analysis far. The Committee on the Grading of Nursing Schools may throw light on the costs of nursing education in 2,160 hospitals reporting "schools" in 1929.

Cost analysis based upon a thorough study of hospital functions would provide the basis for more effective financing. Confusion on these points may result in unduly high or low fees for hospital services or in the curtailment of an important educational program. Contributors might be willing to support education and research if they could be shown that their funds were actually so utilized. The patients treated in out-patient departments might be willing to pay fees which would more nearly approximate the costs of the services, provided such costs were known. Hospital administrators might discover that a properly conducted training school for nurses was more expensive under some conditions than the services of graduate nurses.

10. *Government hospital patients are predominately "free," and those in proprietary hospitals "full-pay."*—Exceptions to this rule may be found. The total number of days of care in government hospitals is approximately 180,000,000 annually. Using an average of six months' stay per patient, the number of patients treated in the course of a year would be approximately

1,000,000. The number of patients cared for in proprietary hospitals would probably exceed 1,000,000, inasmuch as most of the cases hospitalized therein are acute. The number of days of care in such hospitals is approximately 19,000,000 annually.

11. *Patients of non-profit association hospitals are, as a class, "part-pay."*—There are about 71,000,000 patient-days of care rendered in hospitals controlled by independent associations and churches constituting the bulk of the hospitalization facilities for acute cases. The number of patients admitted to these hospitals annually would be approximately 5,000,000. The fees paid by the patients of such hospitals do not suffice to recover total costs of the services, even when fixed charges are left out of consideration. Throughout the country, communities have contributed voluntarily from 10 to 40 per cent toward the operating costs of non-profit hospitals.

12. *Individual patients in non-profit association hospitals may pay amounts which equal or exceed the costs of the services rendered in their behalf.*—Adequate technique has not yet been developed for comparing the costs incurred for individual patients or classes of services with the receipts from individual patients or from all patients receiving each class of service. This condition obtains, even though community support for hospital service has usually been based on a presumed measurement of the amount of free service rendered by individual hospitals.

13. *Organized community contributions to hospitals have usually been intended to meet current rather than capital needs.*—Community chests of the United States have, almost without exception, taken the position that they would aid hospitals to recover operating costs but not fixed charges. This policy has of course required some attention to the problem of fixed charges. Confusion has often resulted from the inconsistent treatment of interest and depreciation in the estimates of the cost of free services rendered by hospitals. Many communities have, in fact, merely aided certain hospitals to balance their annual budgets for cash receipts and expenditures.

Some non-profit hospitals deliberately "tax" patients receiv-

ing certain classes of service in an effort to support free service rendered to others. This practice is the cause of some jealousy among hospitals, especially in those cases where hospitals are excluded from community chest contributions because of the fact that patient's fees suffice to recover operating costs.

14. *Capital needs of hospitals have always been greater than current needs not met by patients' fees or taxation.*—In 131 cities the estimated annual capital expenditures by hospitals were $12,000,000, whereas voluntary contributions received for current services were less than $7,000,000. Voluntary contributions have, for the most part, gone into plant and equipment, donated in large sums at irregular intervals. Consequently, community chest policies have not greatly affected hospital financing in the past.

The capital needs of hospitals are becoming more predictable because of the replacement of facilities and the regular programs of expansion. For this reason it should be possible to budget them more accurately. A co-ordination of the financing of current and capital needs would lead to a better proportioned development of both facilities and service. In some instances in the past, capital investment has either lagged behind or outrun the development of other phases of medical service.

CHAPTER XX

CAPITAL INVESTMENT AND HOSPITAL ADMINISTRATION

The following conclusions, which are drawn from the data and the analyses already presented, are of two main types: (1) those which relate primarily to the hospital and its administration (chap. xx), and (2) those which relate to the communities served by the hospitals (chap. xxi). These two points of view are not basically in opposition; they are rather complementary in their nature. Consideration of the one would be incomplete without mention of the other.

1. *Capital investment has been provided by groups rather than by individuals, and usually on a non-profit rather than on a business basis.*—Hospital care, even of the simplest kind, requires relatively high capital investment for each patient receiving the service. It seems to be necessary to invest at least $5,000 per bed for the hospitalization of patients suffering from acute diseases and conditions. This means that a 100-bed hospital represents a capital investment of approximately $500,000, an amount ordinarily too great to be provided by one person or a small partnership. Moreover, in every community there are a relatively large number of persons without the means to sustain them during periods of illness, who are unable to pay a physician or to purchase hospital services at even the most moderate rates. Yet these people must be served. Life and health are not commodities to be sold and delivered only to those who can pay the price, and withheld from all others. The traditions and the practices of the medical profession have long recognized this fact.

Until recently, most hospitalization carried on by governmental units was for mental and contagious cases or for patients whose homes were not satisfactory because of hygienic condi-

tions or lack of help. This latter group represented almost exclusively the indigent or very poor, who, accordingly, were provided with both medical and hospital care free of all charge to themselves. Hospitalization began, therefore, as a social service rather than as a business. It is only in recent years that the rapid growth of hospitals has provided for the care of the well-to-do and the middle classes, the latter class differing from the so-called "indigents" in that they are accustomed to pay for most current needs, but often resembling them in the lack of funds for the exigency of serious illness. Hospitals, therefore, have never expected to collect income from patients in sufficient amounts to cover both operating costs and fixed charges, even though some accommodations within their walls may have been priced at rates sufficient or more than sufficient to achieve this result.

The costs of hospital care have usually required community support, either through taxation or voluntary contributions. Business investors have not advanced funds, for they have realized that it would be necessary to secure public support if earnings on their investment were to be assured. Accordingly, certain citizens have advanced the funds for construction of hospitals on a frankly philanthropic basis. This method of voluntary non-profit financing of plant and equipment for acute diseases and conditions has developed side by side with governmental hospitalization of the indigent and of cases requiring isolation or certain special care, like the insane.

The history of hospitalization explains why the ownership of hospitals by physicians has not progressed farther. The medical profession could not be expected to donate the vast capital investment necessary to hospitalization—approximately $22,000 per licensed physician. Nor would the tradition of the profession permit them to organize hospitals and limit services only to those patients able to pay the full costs. Patients unable to pay the full costs of their hospitalization must be served regardless of their economic status. This requirement would place a heavy burden upon the medical profession if it were to provide

capital for all hospitalization. It accounts in part for the fact that the number and bed capacity of proprietary hospitals have been decreasing relatively in the last decade, and in recent years has decreased absolutely.

2. *The three main methods of securing hospital capital possess characteristic advantages and limitations.*—Governmental units possess several distinct advantages in the provision of hospital capital. "Nothing is sure but death and taxes" runs the old adage. And the inexorable nature of a tax can be turned to good account in averting death. Where the community's health is at stake, governmental support has been widely availed of; in fact, it has often been said that the sphere of governmental activity in health matters should be limited to conditions involving "the public health." Certainly it appears that to a great extent public health service and governmental hospitalization of individuals have been prompted by a desire to protect the public rather than to aid the individual.

Government support is reliable. Funds sought for a governmental hospital are almost always secured, within the limits of the legality of the venture. The success of a building project or an attempt to balance a cash budget is not subject to the whims of a few large contributors or dependent upon the sales ability of the hospital promotors. For this reason there is something to be said for the use of governmental units in all hospital care requiring community support, and the limitation of private services to those who pay the full costs of their care, including the fixed charges. Certain small communities have followed this policy.

Those unofficial representatives of the general public, the *non-profit hospital associations*, have tapped vast resources for the construction of hospital plant and equipment. The motive has been to provide for the entire community a place where patients may be hospitalized. Rates have been established so that total earnings would not exceed total operating costs, although some of the services have been made generally available at rates above their presumed costs, others below. In many

cases, even operating costs have been met only by the aid of endowment earnings or current voluntary contributions.

The tremendous investment required for hospital service at times induces rival independent associations or churches to vie with each other in administering to the public needs. This competition sometimes results in duplication of similar facilities beyond the requirements of the community, with the accompanying withdrawal of funds from other types of public service. Capital investment in hospitals is not the only financial need of hospitals, and hospitals are not the only form of medical service entitled to public support. Undue expansion of capital investment is unwise because the excess plant and equipment require substantial readiness-to-serve costs if any portion is to be held ready for use.

The capital needs of a community are irregular but imperative. Occasionally it happens that a donor insists on giving funds for facilities which are not appropriate to the community's needs. Rather than wound the vanity of a wealthy donor, certain communities have accepted facilities which were essentially monuments to his pride instead of stations of public welfare. A non-profit association which would represent the general public must be in a position to act in the interest of the public and to control its receipts as well as its expenditures.

Fraternal and industrial hospitals represent ventures by restricted groups in providing for their own hospital care. Where groups are well organized and homogeneous in the economic status of their members, they can finance their medical care by regular and more or less equal contributions from the membership. The amount of the contributions necessary can be predicted, in so far as data exist to show the probability of illness requiring hospital care among the group. These policies have been followed by certain fraternal groups, particularly for the care of certain kinds of diseases and certain age groups, such as children and the aged and infirm. A similar situation exists with regard to most of the industrial hospitals, which are supported either by voluntary contributions from the employees of

an industrial enterprise, by deduction from the general coffers of the firm itself, or from both sources together. The population to which this principle applies is, of course, always limited, but the procedure has the advantage of insuring adequate care regardless of the total costs incurred by individual patients.

3. *Endowment income has been of slight influence in the development and support of hospitals in the United States as a whole.*—A hospital cannot be endowed until it is constructed; at least the benefits from the endowment must wait upon completion of the plant and equipment. The earnings of endowment assets are intended primarily to subsidize current operating costs, though the same result would have been obtained if the funds had been used for construction or the repayment of an existing debt. Usually hospitals with endowment are free of fixed indebtedness, but there are some outstanding exceptions. The endowment of a hospital which is in need of better plant and equipment may be uneconomical from the viewpoint of the entire community; for the task of meeting the current deficits from free service may be an easier one than raising capital sufficient to expand or improve existing facilities. The amount of endowment income received by a hospital is not ordinarily a large proportion of the total income necessary to finance its success. The one major exception is the group of teaching-hospitals, although even here much of the endowment appears to have been prompted to facilitate medical education rather than care.

It requires approximately $30,000 to "endow" continuous service in a hospital bed, assuming a cost per day of $5.00, not including fixed charges. This is from five to six times greater than investment per bed in many modern hospitals, and only one or two hospitals in the United States are in this sense "completely endowed."

This condition is not fully appreciated by foreign visitors who familiarize themselves with the finances of the larger hospitals in the North and Middle Atlantic states. A well-known and highly respected English hospital director wrote as follows, after visiting certain eastern hospitals during the International Hospi-

tal Congress in 1929. "American Hospitals, as a rule, have considerable free capital at their disposal. They are able to command large sums for new buildings and extensions. The interest on their endowments provides nearly a quarter of their annual expenditures."[1] As a matter of fact, probably no group of representative hospitals in the United States would show an endowment income equal to one-fourth of their total income, although for selected groups in New York, Boston, and Philadelphia such proportions might exist. But even in these cities, there are many hospitals of good standing which meet very small percentages of their current needs from endowment income. In the southern and western portions of the United States endowment income is almost negligible.

The immediate need with regard to hospital service cannot be met by the accumulation of endowment. Large community contributions have been made annually to aid hospitals serving part-pay patients. In the meantime these same hospitals have not always developed their capital investment to the optimum degree. Endowment capital may withhold capital from important construction, and at the same time make a negligible amount available for defraying operating costs. This condition is not an acute one, however, for endowment capital exists only in the more settled areas where the plant and equipment have been most fully developed. Newer communities are meeting the part-pay patient problem by other methods—with funds raised by voluntary contributions and by taxation. Later, when capital funds are available for endowment, other problems will still be present—the financing of medical and nursing education and research will bid for their shares of the endowment earnings.

4. *Adequate utilization of the immense capital investment is one of the major demands of hospital economy and efficiency.*—The plant and equipment for the hospitalization of the average patient are increasing, as evidenced by the investment per bed in

[1] Arthur Griffiths, O.B.E., secretary, East Suffolk and Ipswich Hospital, *The Tenth Annual Report of the Voluntary Hospitals in Great Britain*, quoted in *The Modern Hospital*, March, 1930.

new hospitals and the continued improvement and expansion of facilities in the older ones. Considering hospital service of all kinds, the present capital is approximately $3,500 per bed. The treatment of acute cases requires relatively higher investments, an average of $5,000 per bed. The total investment in plant and equipment points to the need for careful measurement and utilization of the services of fixed capital, which is another way of saying that fixed charges should be recognized as costs of hospital service and should, if possible, be reduced.

There seems to be little possibility of decreasing fixed charges by reducing the present capital investment; hospital plant and equipment cannot ordinarily be disposed of satisfactorily from a business point of view. Moreover, many hospitals allege that their fixed assets are still insufficient for present needs. They are introducing new kinds of equipment, constructing nurses' dormitories, remodeling the operating rooms, enlarging the outpatient departments, dividing large wards into semiprivate and private bedrooms, in addition to enlarging the patient-bed capacity. It seems useless to expect that capital investment will be reduced either absolutely or relatively in the near future. If the burden of fixed charges is to be lightened, it must be accomplished by distribution among a larger group of beneficiaries, that is, by increased and more effective utilization of the capital invested in hospital plant and equipment. This method is open both to the individual hospital and to the community.

Definite savings can be gained from the construction of fairly large hospitals. The economies of specialized equipment are realized only when they are used to a high percentage of capacity. For this reason certain types of mechanical equipment and specialized professional knowledge and skill can be held available only when needed by a fairly large number of patients. Small hospitals frequently limit the scope of their functions, as well as the quality of their diagnosis and treatment, because of the high fixed charges necessary to make certain services available to a small group of patients.

5. *Methods of providing hospital capital have not tended to encourage most effective utilization.*—The groups providing hospital plant and equipment have generally expected neither repayment of their investment nor the receipt of income from it. The investment in proprietary hospitals is the sole exception to this rule, but it will be recalled that this is less than 9 per cent of the total in the country. Capital requirements have been irregular, particularly with regard to land and buildings; and fixed charges have ordinarily not been accounted for in hospital records and reports. Slight attempt has been made to recover fixed charges through patients' fees, or even from other sources of current income. These conditions have tended to obscure the existence of fixed charges. Hence, in contrast to the business world, pressure to achieve the most efficient utilization of fixed assets has been more or less removed from the administrator of hospital finances.

Many hospital superintendents have taken no part in the financing or the construction of the plant and equipment which are under their control. Their administrative efficiency has generally been judged by their ability to balance cash budgets for operating costs rather than by their capacity to plan construction and to apportion patients to appropriate facilities. It is uneconomical, for instance, for convalescent or long-term patients requiring custodial care to be cared for in a pavilion intended for the treatment of acute medical and surgical cases. But once a hospital has been built, a superintendent may improve the cash position of his budget by caring for convalescent or long-term patients in the existing accommodation rather than by providing new ones specially adapted for these services. One may expect to find, therefore, that although there is much discussion at the present time of the need for convalescent and rest facilities, some hospitals with unfilled beds will not wish to lose the class of patients for which operating costs are the lowest.

Out-patient service, inasmuch as it centers around the physician, is more akin to the private practice of medicine than it is to the old type of hospitalization, which consisted of bed, board, and bedside nursing. Moreover the fact that out-patient care

is rendered in connection with hospitals rather than in separate dispensaries indicates the interrelationship between all types of medical services. Much of the capital investment used in out-patient service would ordinarily be required by the hospital in any event, and the possibility of sharing the fixed charges with other medical services has often led to important improvements in hospital care. The growth of out-patient service represents a trend toward group medical practice, with its attendant savings in overhead costs in the services of individual physicians. Most of the physicians in out-patient departments are already engaged in independent private practice, and render their services free to the hospitals. The experience of these hospitals in expanding their functions illustrates the advantages to be gained from pooling the fixed charges of medical services and from making the hospital a focal point for all medical care.

6. *Hospital income from patients' fees should be adjusted with more regard to costs of services rendered.*—This does not mean that fees should necessarily be based upon costs. It does mean, however, that hospitals should know to what extent individuals or classes of patients are paying the costs of the services they receive. *To secure the maximum income from patients requires a knowledge of fixed charges and readiness-to-serve costs.* Furthermore, any request for community support should be based upon such facts. It has been more or less assumed that patients as a class will never pay the full costs of their services, including fixed charges. But in the long run the only source of income is the general public which includes the patients. The real problem is: How much of the total costs are to be secured through patients' fees, and how much through compulsory or voluntary contribution? It is at this point that the patient's complete economic status, including his previous and prospective expenditures for medical care of all kinds, becomes an important consideration. Hospital fees to individual patients undoubtedly should be affected by economic status. In fact, for some groups the fee may be based almost exclusively upon economic status (as in the case of the "indigent" patient). On the other hand,

there will be a large number of patients for whom the point of departure in establishing fees will be the cost of services rather than the economic status of patients. The administration of any policy which attempts to apportion all or a part of the costs of services against a patient or a class can only proceed after costs are known.

The establishment of fees for services which will approximate their total costs requires the apportionment of fixed charges. It is a well-known fact that private-room service demands the use of some of the most desirable portions of the hospital plant and equipment, even though the operating costs for labor and supplies may be but slightly greater than for ward care. Many hospital superintendents have defended the establishment of relatively high fees for private rooms solely on the ground that they were intended to provide a modicum of charitable contribution. Yet it is probably true that in many cases the higher rates would be entirely justified in the eyes of patients if it were merely stated that the fees were intended to recover a portion of the fixed charges. When one considers the advantages of privacy, the desirable locations, and often the choice appointments of the private-room accommodations, he must realize that service in these rooms costs more than in the wards, even though the total fixed charges may have been met by generous donors to the hospital.

Many well-to-do patients would consent to paying more for what costs more, yet would object roundly to a compulsory charitable contribution. Generous citizens wishing to contribute a portion of capital investment usually do so by making voluntary contributions during campaigns for building funds, irrespective of the possibility of their being served as hospital patients. Such patients would ordinarily not object to paying the full costs of the care rendered them in the hospital. On the other hand, well-to-do patients who do not donate funds to a non-profit hospital may appropriately be expected to pay the full costs of their own services through hospital fees sufficient to recover a part of the fixed charges. In this way such patients

are merely paying for what they get, and not contributing to charity under the guise of a hospital fee. If hospitals are to create the community understanding necessary to maximize income from patients' fees, they must make clear the rôle of fixed charges in the establishment of rates.

7. *In government hospitals constructed entirely from tax funds patients' fees should not exceed the operating costs of the services to which they apply.*—One justification for establishing certain rates in private non-profit hospitals at levels sufficient to recover fixed charges is that in this way well-to-do patients are thereby required to pay the full costs of their services. But this justification does not apply to government hospitals, for which all capital funds are raised by taxation of citizens on the basis of their financial status. The burden of fixed charges in government hospitals has presumably been equitably distributed among the population by tax levy. Those members of the population who patronize government hospitals should, therefore, be asked to pay only the operating costs of their services. To be sure, government hospitals, by constructing private-room pavilions, may elect to rely upon patients' fees rather than taxation for a part of the capital. In any case, hospital fees should be expected to recover only that portion of fixed charges not met by governmental taxation.

CHAPTER XXI

CAPITAL INVESTMENT AND THE PUBLIC

1. *Hospitals are, in the main, owned by the public.*—Ninety-one per cent of the hospital capital has been provided by the public, without expectation of repayment or business return on the investment. The small amount invested in proprietary hospitals has been restricted to services for self-supporting individuals or groups. The physicians owning many of the small private hospitals declare that to a great degree these hospitals represent investments in private practice rather than hospitalization. If the hospital capital of the United States were to have been supplied by the approximately 140,000 physicians, there would have been required an initial investment of $22,000 each, and a current contribution from each of about $1,500 annually to make good depreciation. Less than 10 per cent would ever have been repaid or have yielded an interest earning. These are the facts; the public owns the hospitals. The public, and not the medical professions or the patients through the payment of medical fees, has provided hospital capital. Is this an equitable distribution of this portion of the burden of hospitalization? Let us see.

What are the services of hospital capital, and who are the beneficiaries of this service? The patients who find their way to a hospital are, of course, the primary beneficiaries; but it is impossible to segregate from the general public those who will be patients and to ask them in advance for contributions to provide hospital plant and equipment. To be sure, proprietary hospitals achieve this result by giving services only to those who pay rates sufficient to recover all cost, including fixed charges. The money is advanced by business investors to provide the facilities for this small group.

But what should be done about the hospitalization of the

general public? Many people requiring hospitalization are not able to pay for it in full, regardless of the reasons for their respective inabilities. Is it the responsibility of the medical profession to absorb part of the costs by erecting hospitals to be operated at a loss? Obviously not. Should the well-to-do patients of hospitals be assessed amounts sufficient to recover the losses incurred by serving patients whose payments do not cover the fixed charges? Many such patients have expressed their objection to such a policy by patronizing only hospitals where each patient pays his full share of the total costs. For well-to-do hospital patients to pay for free service to other members of the public is just as fair or unfair as for well-to-do patients of private physicians to be assessed higher fees for equivalent service because of a physician's charity work.

The services of capital investment must be regarded as accruing to all potential patients, not merely those who use its facilities. Even a wealthy patient cannot construct a hospital for his special needs after he has become ill. The hospital may be needed quickly, or not at all. It is in the interests of the public to have hospital facilities available for certain kinds of service, and the public must provide them. The public's interest in hospitalization is sufficient to justify governmental taxation and voluntary contributions as methods of providing capital investment. The fixed charges in this way are borne by the general public, and the operating costs alone may be assessed against patients as a class. But public policy has usually gone farther and approved a general levy on the community (either through governmental taxation or solicitation of voluntary contributions) for those patients who do not pay the full operating costs of their hospitalization, either because of unusually low economic status or because of the unusually expensive medical services needed. The responsibility for the payment of hospital costs incurred by patients unable to pay for themselves rests primarily with the general public and not with the medical professions or a small group of well-to-do patients. This responsibility, if recognized and met consistently, would avoid the necessity of

"taxing" certain classes of patients through the medium of hospital fees. The policy of having one group of sick people contribute toward hospital care for others adds insult to injury, when one pauses to reflect upon the extent to which the incidence of diseases and conditions requiring hospitalization is the result of human relationships. One might as well say that the hospital bills should be paid only by the well members of the public.

2. *The public should exercise better control over its capital investment in hospitals.*—The general public which pays for its medical service, either through patients' fees or through compulsory or voluntary contributions, should be permitted to say whether, when, and where it will receive hospital care. The quality of the care is, of course, in the hands of physicians and the professions interested in hospitalization. But inasmuch as the public is providing the money for hospitals, it is entitled to control such expenditures. In a general way such control has been exercised through the activities of governmental units and through the co-ordination of non-profit association policies, by the promotion of hospital councils, community chests, etc. But there is much left to be done in the co-ordination of the services of non-profit association hospitals, which are peculiarly important because of the large number of patients using such hospitals for acute diseases and conditions.

Hospital care cannot, of course, be considered apart from its special rôle in complete medical care. It must be related to the number and training of the medical and nursing personnel, to the stage of development in public health, to the economic status and hygienic habits of the potential patients. Any community should view with alarm the expansion of hospital facilities, except in response to a recognized immediate or future need. It should not permit indiscriminate investment in hospital plant and equipment to satisfy racial, religious, social, or professional ambitions. Such action deprives the public of other benefits which might be of greater immediate or long-run value. For a practical discussion of this problem as presented several years ago to a conference of social workers in a mid-western commu-

nity, see Appendix D, which gives brief abstracts from the stenographic report of a speech by a local physician.

Capital investment should not exceed the limits of adequate medical service. Where it is permitted to transcend these limits, because of the demand for de luxe accommodations, the individual patients should pay the entire costs of the excess fixed charges thus incurred. The co-ordination of the total hospital facilities of a community is as important as flexibility of accommodations within the individual hospital. The hospital beds of a community are, of course, not always interchangeable. A bed in an asylum for nervous and mental cases is not available for a sick child. Likewise, a bed in a tuberculosis sanitarium is not available for a maternity case. Nevertheless, there are important advantages to be gained where hospitals co-ordinate their services, either by specializing on certain types of medical cases or by directing patients to hospitals where their special needs can be met most effectively.

3. *Control of capital investment financing policies has certain advantages and limitations.*—If a community were to budget its capital needs carefully, would not such a policy discourage large individual contributions? Possibly it would, especially if it were to rely heavily upon compulsory taxation. Moreover, it might remove some of the personal and humanitarian element from the individual contributions, both large and small ones. On the other hand, controlled investment would assure meeting capital needs at the times they arose, and would avoid such an embarrassing situation as having to accept or reject offers which were inimical to the public welfare. It is possible, too, that many contributors would be glad to continue their large contributions, to be used in such manner as seemed most appropriate. These are practical matters which each community would need to consider when contemplating any program of controlling its hospital capital-investment program.

At present the capital requirements are irregular; but as hospital facilities improve, the capital needs will be limited to making good the depreciation of plant and equipment, with additional

expenditures to keep pace with the growth of medical science and total increase in population if any. This new condition would lend itself to regular planning, and capital needs may be brought within the programs of community agencies supporting social services.

If community chests, and doctors and hospitals participating in their planning, were to change their policies and definitely set out to control hospital construction, and also to raise funds for plant and equipment, much good might be accomplished. The prevention of duplication of hospital facilities might release much capital for the current subsidizing of hospital care. This method is not in contemplation by most community chests and may not become an integral part of their policies within the near future.

4. *Costs of hospital services must be considered with relation to other medical services.*—Many illnesses do not require hospitalization, or require it only after long periods of self-treatment or physician's care in the home, accompanied by unemployment and expenses for additional help. These costs are all part of the costs of sickness, and the hospital patient may find that they amount to greater totals than the hospital bills. It does not suffice merely to reduce hospital costs while other expenditures continue or increase. Increased utilization of plant and equipment may result in lower fees for board-and-room service, even for diagnosis and therapy. But it does not provide sufficient funds for physicians' fees, special nursing services, the employment of maids in the home, or for the actual necessities of other members of the family. Hospital fees are only part of the total sickness bill, yet they usually are accompanied by other costs, and frequently follow a train of circumstances which make their payment difficult. Hospital service, being unusual, infrequent, and expensive, is not ordinarily included in the budgets of families which are otherwise self-supporting. Hospital costs often fall, therefore, with crushing weight upon already depleted financial resources. It is because of this condition that much outcry is directed against hospital costs, although the amounts

paid by individuals and the public to hospitals may be less than that for professional services or for drugs. Patients are interested in their total sickness bills, and a reduction of hospital fees to individual patients is only part of the cost of sickness, albeit an important one.

5. *Improved utilization of capital investment in government hospitals may release funds for the remuneration of professional groups.*—The payment of physicians for all work done for individual patients or for the public is an important feature of good hospitalization. There is no more reason for the medical profession to render free service in government hospitals than to assume the burden of expenditures for nurses, orderlies, or supplies. It has often been stated that physicians' personal services do not represent cash outlays for supplies, and hence are not of the same importance economically as other medical expenditures. But such is not the case. The only real distinction is historical, in that physicians in the past have been able to recover the value of their "donated" services by assessment against their full-pay patients, whereas nurses, orderlies, and the vendors of supplies have not been able to do so.

There is nothing inconsistent in a physician's receiving pay for service in a government hospital, where all other employees earn their livings by the work they do there, and when all groups participating in its construction have been remunerated on a business basis. In the past, to be sure, much medical care would probably have been impossible if physicians had not contributed their services to the care of patients in government hospitals. But it is undignified for an organized community to ask any group continually to make gifts of services or commodities to the public good without crediting them explicitly with their contributions. This custom must be regarded as a practical makeshift rather than a logical solution of the problem.

The situation with regard to nursing sisterhoods might be regarded as similar to that of physicians, except that members of the religious nursing orders have definitely withdrawn from the usual family life and are in all events assured of a livelihood,

even though no personal wealth is accumulated. The public has never fully appreciated the extent of voluntary service which physicians, nuns, and deaconesses have rendered to the patients in American hospitals. The appropriate way in which the public should recognize the work of nursing sisterhoods is probably by more complete support in financing their hospitals. Physicians, however, are individually entitled to reasonable compensation for their services to government hospitals or to "free" patients under any and all conditions. The general public should pay the bill, and the physicians should not be required to charge such services to experience or advertising. Economies in hospital construction and the attendant reduction of fixed charges for hospital service will contribute toward this desirable objective.

The border line between non-profit association hospitals and government hospitals is being gradually broken down. Governmental units are, on the one hand, contributing to the budgets of independent hospitals for the care of free patients; on the other hand, some government hospitals accept part-pay patients as well as full-pay patients who make payments to their private attending physicians. It is no disgrace at present to attend a public school or a state university. The time may come when an operation in a county hospital will be considered as respectable as one in a private hospital.

6. *The capital investment problem is not peculiar to hospitalization.*—All branches of medical and social service face the need for an understanding of the amount and significance of their capital investment. Most education costs are, of course, borne by the general public in the hope of an improved civilization. The "social capital" invested in the education of physicians, dentists, lawyers, clergymen, and teachers is very great. Heavy fixed charges result from the plant and equipment in medical schools, not to mention the investment made by the universities through the payment of the teaching staffs. These amounts, when added to the medical students' own expenditures during their course of study and interneship, and their outlay for office equipment, make an imposing capital investment. A misunder-

standing of the distribution of the fixed charges resulting from this capital investment lies at the root of much discussion and dissension concerning economic problems in private practice. A study of the capital investment by the general public and by the physicians in private or group practice might throw much light on the economic aspects of medical care. Such a study would be no less important, as to scope or implications, than the one reported in this volume.

7. *What of the future?*—The need for adequate utilization of capital investment is a pressing one at the present time. Will it become less acute in the near future? Probably not. The investment per bed in hospitals bids fair to increase for some time, possibly a decade, although there is some evidence that the total number of beds in the country may increase much more slowly. During 1929 nearly 1,000 hospital construction projects were undertaken, although during that year the total number of hospitals in existence remained practically stationary. The "registered" capacity increased by less than 15,000 beds, the growth resulting almost exclusively from the expansion of state nervous and mental hospitals. In the future hospital facilities will doubtless continue to be improved, even if not enlarged in terms of bed capacity. Any solution of the problem must be found in the control of the capital investment rather than reducing it or retarding its growth. Even if the facilities were now satisfactory, there would still be needed annual expenditures of more than $100,000,000 to make good the depreciation. This means a contribution of nearly $1.00 per year for every man, woman, and child in America. At present the capital investment per person is approximately $25 per capita, not including endowment.

The capital investment problem is not the only one confronting hospitals at the present time. Much has been said by critics and defenders of present hospital service for and against the efficiency of management, the attitude of employees, the high intentions of boards of directors, the economy of labor and supplies, etc. The patient has been scored for his improvidence

with regard to the burden of illness, his vanity in the selection of accommodations, his insistence upon unnecessary attention, and his irresponsible attitude toward the payment of hospital and physician's fees. All of these matters, important and interesting as they may be in the problems of medical costs, have been brushed aside in the foregoing discussion, in order that attention may be focused upon one single aspect of hospital service—capital investment and the fixed charges arising therefrom.

At the time the writer began this study, he felt that possibly one of the reasons for considering fixed charges was to establish a policy by which hospitals as a group could be self-supporting. The facts show that hospitals have never even approximated this condition. If the capital investment burden had not been carried by the general public, much hospital care could never have been rendered.

The nature of hospital service makes it essentially a public utility; and the burden of providing the capital investment should fall upon the ultimate beneficiary, the general public. But the problem of capital investment is not less important to individual hospitals by virtue of this fact. Careful analysis of fixed charges is required to place the burden upon the appropriate groups and to remove it from those who should not pay. A hospital should not assume that because fixed charges are not assessed against its patients, they are any the less actual "costs" to the general public which has provided the capital. Fixed charges are always present, and both hospital administration and financing require an appreciation of the rôle of capital investment in hospital care.

PART V
APPENDIXES

APPENDIX A

SCOPE AND METHOD OF STUDY

SCOPE OF STUDY

At the outset, the scope of the study was contemplated as merely an investigation of the significance of capital investment to individual hospitals and its bearing upon each hospital's costs and financing policies. Accordingly, it was determined to procure capital-investment data by actual visits to a selected group of representative hospitals, probably fifty. The lively interest shown by the directors of hospitals visited prompted the extension of the inquiry and made it possible to demonstrate statistically certain points which it was intended to discuss solely on the basis of specific illustrations. Capital-investment data and other financial facts concerning hospitals were procured by three procedures: (*a*) visits to hospitals, (*b*) analysis of reports concerning individual hospitals, and (*c*) analysis of summarized data prepared by private and public agencies.

VISITS TO HOSPITALS

Between March 1 and December 6, 1929, 171 hospitals located in twenty-seven states were visited by the author; 45 additional hospitals were visited by several assistants during the months of June, July, and August, 1929. A letter of introduction was kindly provided by a special committee of the American Hospital Association. On the whole, hospital representatives were interested in the study and considered it a privilege to co-operate. In some cities, particularly Philadelphia, Cleveland, Detroit, Toledo, Grand Rapids, Des Moines, San Francisco, New Orleans, and Kansas City, introductions were provided by the community fund or welfare federation. A Duke Endowment representative introduced the author at a number of rural hospitals in North and South Carolina.

Hospital representatives often found that their records did not provide reasonable valuations for their plant and equipment. Their annual reports made no valuation of capital investment; and even where balance sheets were presented, it often developed that the figures appearing thereon bore but slight relation to either the original cost or the replace-

ment cost of the capital. In several instances, a study of the ledgers by the author served to verify values appearing on published reports or to establish for the first time a "plant and equipment" item in the books of account. The medical director of a 600-bed eastern hospital placed before the writer a certified balance sheet containing a "land, buildings, and equipment" item of $3,300,000. Details of this amount were available at the offices of the accounting firm in charge of the hospital's annual reports. A call at the office of this accounting firm revealed the following detail composing the total:

An old medical college	$1,000,000
An old hospital (200 beds, land, and buildings)	1,000,000
Out-patient department	300,000
Miscellaneous land	145,000
New medical college	855,000
Total	$3,300,000

This amount did not include the value of a multi-story patients' pavilion erected in 1925 at a cost of approximately $2,500,000. When asked where the figures were for this other unit, the auditor replied: "Those figures are not included in this balance sheet. At a recent meeting of the Board of Directors the question was raised as to whether or not it should appear in the balance sheet in order to reflect the true financial condition of the hospital. The figures placed before you are the estimated replacement costs of the old hospital and the old medical school. Actual costs are recorded only for a portion of the new medical college now under construction."

In the same city, the land site occupied by a well-known hospital was carried on the balance sheet at a value of $1.00, the one dollar being merged in a total designated as "plant and equipment." According to a real estate firm in the city, the sale value of this land was at least $1,000,000. It included an entire city block in the center of a rapidly expanding and highly desirable residential district.

A 140-bed hospital in a middle western city of 200,000 population reported its "real estate" at a value of $228,000. This figure was presumed to represent the value of the hospital pavilion, a nurses' home accommodating 100 women, and 15 acres of land in a desirable residential section. A study of the accounting records of the hospital revealed that the figure in the report did not include the cost of construction or a reasonable valuation for the main hospital building. The $228,000 repre-

sented only the actual cost of the land on which the hospital was built, plus the cost of construction of the nurses' home and certain minor capital expenditures. The main hospital structure had been erected and equipped at a cost of $770,000, and had been given, free of debt, by a single donor.

These illustrations indicate that hospital executives have not given a great deal of thought to the importance of correct accounting for capital investment. Annual reports, accurate as they may be with regard to cash receipts and disbursements, cannot always be relied upon to give a complete or correct statement of either the cost or value of the plant and equipment. In contrast to these instances, there were also hospitals whose records showed a complete knowledge of the cost or value of the plant and equipment, and in which period depreciation allowances were entered to reflect the reduction in value from wear and tear or obsolescence.

ANALYSIS OF REPORTS CONCERNING INDIVIDUAL HOSPITALS

Data concerning the costs of 33 recently constructed hospitals were secured by correspondence directly from eight well-known architectural firms in different parts of the country. Costs of construction were also supplied for 16 federal hospitals by various agencies in the federal government: the supervising architect of the Treasury Department, the quartermaster general's office of the U. S. army, the commissioner of Indian affairs, and the construction division of the Veterans' Bureau.

A mimeographed post card containing a brief request for a recent financial report was mailed to 1,230 hospitals with more than 50 beds, which were approved by the American College of Surgeons in 1928 and which had not otherwise provided data. Of these hospitals, 420 sent printed, mimeographed, or typewritten copies of their reports. Some of the printed annual reports contained no financial data; a large number contained statements of income or expense without valuations for fixed assets. In all, 231 contained balance sheets giving plant and equipment values which could be accepted as accurate, either as presented or after adjustment in line with further data secured by correspondence.

A letter was mailed to each of 104 hospitals which were reported in the October, 1929, *Bulletin of the American Hospital Association* as having building projects under way. This letter brought 84 replies, which provided much useful information concerning present-day construction costs and furnished the basis for verifying and testing other data before they were subjected to statistical analysis.

ANALYSIS OF SUMMARIZED DATA PREPARED BY PUBLIC AND PRIVATE AGENCIES

For each hospital receiving grants from the Duke Endowment a careful estimate had been made of the capital investment based upon replacement value at the time the individual hospital first participated in the fund's distribution. This estimate had been subsequently revised to include additions and depreciation. This fact made it possible to secure capital investment data concerning 78 North Carolina and South Carolina hospitals after an analysis of the report made by each hospital. The statistical sheet of the United Hospital Fund in New York City presents figures representing the capital investment of 57 New York and Brooklyn hospitals. An analysis was made of the original reports of these hospitals, with respect to values submitted for land, buildings, and equipment. The data were very useful, although in some cases values had been reported which were usually less than the replacement value of the plant and equipment.

The Pennsylvania Department of Welfare made available reported values for the plant and equipment of 149 hospitals which received state aid in 1928. These data were not sufficiently accurate to be merged with other data secured directly from hospitals, but they were indicative of certain tendencies and served for comparison with similar data collected four years earlier. The Massachusetts Department of Public Welfare permitted a representative of the committee to tabulate certain financial data which had been received from more than 100 private charity hospitals. The annual report of the New York State Board of Charities and Corrections in 1928 included the reported valuation of 283 hospitals under other than state control.

Data secured by the Catholic Hospital Association were made available for purposes of this study, which aided materially in the classification of institutions holding membership. The American College of Surgeons, through its published lists of approved hospitals, and permission granted a representative to analyze certain records as to form of legal organization, provided helpful co-operation.

Data on a great number of the large state hospitals, particularly those for mental and tuberculosis cases, were secured by requesting copies of the annual reports of the agencies controlling these institutions.

Numerical data secured by direct visit or by correspondence were not always more accurate than those secured by indirect methods. In some instances the author found it necessary to make a personal appraisal of

the capital investment of a hospital visited; on the other hand, cost of construction data in published reports often were accurate measurements of capital investment. Table A I is merely to show the variety and amount of numerical data on which the author's estimates are based, classified according to the method used in securing the facts.

TABLE A I

HOSPITALS AND BEDS FOR WHICH DATA WERE SECURED, CLASSIFIED ACCORDING TO MEDICAL SERVICE

TYPE OF SERVICE	METHOD USED IN SECURING AND EVALUATING DATA							
	Personal Visits		Analysis of Data Concerning Individual Hospitals		Analysis of Summarized Data		All Methods	
	Hospital	Beds	Hospital	Beds	Hospital	Beds	Hospital	Beds
All types	216	50,257	308	65,226	696	206,550	1,220	322,033
General	188	44,499	226	42,977	494	74,021	908	161,497
Nervous and mental	4	2,358	9	10,023	79	115,441	92	127,822
Tuberculosis	6	1,364	32	5,196	57	9,780	95	16,340
Special	18	2,036	41	7,030	56	6,248	115	15,314
Institutional	.....	.....	.....	.....	10	1,060	10	1,060

ESTIMATING THE TOTAL CAPITAL INVESTMENT

The capital investment established for individual hospitals was the replacement cost as of December 31, 1928. The type of evidence accepted in establishing this value was not similar in all instances. For recently constructed hospitals, the values of the land, buildings, and equipment could be determined from the purchase prices recorded in the books of account. Depreciation allowances were established at a 10 per cent annual rate on the original cost of equipment and $2\frac{1}{2}$ per cent on the original cost of the buildings. Some land or buildings had been purchased or constructed long enough ago so that offsetting allowances for appreciation in value were also required. In these cases other data, such as special building appraisals for insurance or loans, assessed values for taxation or other municipal registration, real estate dealers' estimates, architects' estimates, were utilized.

Some data were unsatisfactory because of the lack of evidence by which to test their correctness. Accordingly, only material from which accurate estimates of replacement cost could be made was accepted as

suitable for statistical analysis. In addition to capital investment data, many important facts were acquired concerning the financial condition and operations of individual hospitals. This material was used as the basis for adjusting some of the valuations of hospitals individually and in groups.

Estimating the amount and distribution of capital investment in the hospitals of the United States involved three steps: first, the calculation of total bed capacity and the subdivision of the total capacity in terms of important subgroups of hospitals; second, the determination of a value which would serve as the average investment per bed for each subgroup; third, the multiplication of the accepted investment per bed by the reported bed capacity for each group, in order to obtain the distribution of the capital investment among the groups of hospitals and hence the total for all hospitals.

The estimates regarding bed capacity were based upon the classification and bed capacities of the 6,852 "registered" hospitals, as recorded in the work sheets of the statistical department of the Conference on Medical Education and Hospitals of the American Medical Association. These hospitals were classified by the author according to medical service, control, and bed capacity, as follows:

Medical Service	Control	Bed Capacity
General	Federal	25 and under
Nervous and mental	State	26–50
Tuberculosis	County	51–100
Special	City	101–200
Institutional	City and county	201–300
	Independent	301–500
	Church	501–1,000
	Fraternal	Over 1,000
	Individual and partnership	
	Corporation	
	Industrial	

These categories provided the basis for classifying each of the 6,852 hospitals and tabulating the reported bed capacity of each hospital according to the subgroup into which it fell. The maximum number of subgroups into which hospitals and bed capacity could be classified was 400. The number of subgroups actually represented in the accumulation of totals was 227, as may be observed by examining Tables B I to B V, in Appendix B.

ESTABLISHING INVESTMENTS PER BED

The determination of an appropriate investment per bed for each subgroup required the statistical analysis of the capital investment data, coupled with general knowledge and opinion in those cases where the data alone were insufficient.

A separate value to represent the investment per bed was established for each of the 227 subgroups of hospitals. This figure was used as a multiplier of the total bed capacity for all similarly classified hospitals. The product was accepted as the capital investment for these institutions.

The respective investments per bed were established by the following method. All capital investment data which had been gathered for purposes of this study were classified according to the various subgroups of hospitals. Data for individual hospitals were then classified into two groups: (*a*) capital investment data known to approximate the replacement cost of plant and equipment, December 31, 1928, and (*b*) capital investment data for which no verification had been achieved through personal visits, direct correspondence, or knowledge as to the basis of valuation.

The capital-investment data known to be accurate with respect to individual hospitals were examined separately for each subgroup, to determine whether the average investment per bed for these hospitals was typical of the entire subgroup in which they were classified. Each sample group of hospitals was compared with the entire subgroup in the following respects: total bed capacity; geographical concentration; urban or rural concentration; dates, costs, and types of construction for individual hospital buildings.

For those groups in which the bed capacity of the sample hospitals was 25 per cent or more of the bed capacity of all similarly registered hospitals (and where no evidence appeared of unusual geographical concentration), the investment per bed for the sample group was accepted, after adjustment to the nearest multiple of $500 for values of $4,000 or less, and of $1,000 for higher average investments per bed. The establishment of the investment per bed by direct statistical analysis (except for the adjustment referred to) is designated as "Method A." This method was applicable to subgroups of hospitals, containing 1,431 hospitals, 523,423 beds, and a capital investment of $1,861,160,000.

For certain groups of hospitals, accurate capital-investment data were so few in number or so concentrated in geographical locations that

TABLE A II

METHOD USED IN ESTABLISHING THE INVESTMENT PER BED FOR SUBGROUPS OF HOSPITALS "REGISTERED" IN 1928, AND THE TOTAL HOSPITALS, BEDS, AND CAPITAL INVESTMENT FOR WHICH EACH METHOD WAS APPLIED

TYPE OF SERVICE	METHOD A			METHOD B			METHOD C			ALL METHODS		
	Hospitals	Beds	Capital Investment (Thousands)	Hospitals	Beds	Capital Investment (Thousands)	Hospitals	Beds	Capital Investment (Thousands)	Hospitals	Beds	Capital Investment (Thousands)
Total.....	1,431	523,423	$1,861,160	3,696	262,098	$904,669	1,725	107,413	$324,294	6,852	892,934	$3,090,123
General.....	1,216	179,034	$1,154,293	3,065	180,846	$663,641	257	10,733	$ 30,832	4,538	370,613	$1,848,766
Nervous and mental.....	206	337,173	684,036	135	36,695	76,559	212	19,869	59,416	553	393,737	820,011
Tuberculosis...	4	4,366	13,831	178	20,036	65,356	325	37,597	115,188	507	61,999	194,375
Special.....	4	2,050	7,000	194	19,980	87,760	521	20,758	72,719	719	42,788	167,479
Institutional...	1	800	2,000	124	4,541	11,353	410	18,456	46,139	535	23,797	59,492

their average investment per bed could not be adopted for all hospitals similarly classified as to medical service, control, and bed capacity. The investment per bed for each sample was accordingly adjusted on the basis of other data, such as known geographic concentration within the entire group and the advice of experts in special aspects of hospital finance. The adjustments from the investment per bed of the sample group of hospitals was in some instances as much as 50 per cent of the amount indicated by statistical analysis. The term "Method B" is used to describe this combined process of statistical estimate and personal judgment. It was applied to groups containing 3,696 hospitals, 262,098 beds, and a capital investment of $904,669,000.

"Method C," a process of expert judgment alone, was applied to certain groups of hospitals, on which no specific capital investment data were secured for any hospitals thus classified. In these cases the writer based his estimates upon data concerning hospitals known to be similar in medical service, control, or range of bed capacity. The capital investment involved was $324,294,000. The groups included 1,725 hospitals and 107,413 beds.

Readers interested in the various subgroups of hospitals for which each method of estimating investment per bed was used may secure this information by communication with the author at the business address of the publishers. Table A II classifies the total hospitals, beds, and capital investment according to the medical services of the hospitals involved. The investments per bed selected for each of the 227 subgroups are shown in Appendix C. The investment per bed for individual groups ranges from $2,000 for the large state hospitals for nervous and mental cases to $10,000 for the independent and the church general hospitals reporting bed capacities from 501 to 1,000. A more strict analysis of the numerical data might have appeared to justify a closer estimate for particular subgroups. But accountants and economists recognize that the valuation of fixed assets is difficult, even under the most favorable conditions. Because of the scarcity of reliable capital investment data in the hospital field, it was considered inappropriate to establish investments per bed in smaller multiples.

No one hospital selected at random from a group would be apt to represent the average investment per bed shown for all those similarly classified. For example, the investment per bed for all independent, general hospitals ranging from 101 to 200 beds was established at $6,000; and this amount was applied to 184 hospitals, with a total bed

capacity of 26,063. Data secured by the author on 68 hospitals thus classified revealed investments per bed for individual hospitals which ranged from a maximum of $15,366 to a minimum of $2,409. The arithmetic mean for the group was $5,796.

A direct measurement of hospital capital investment would have been impossible except through a laborious census and assurance that each enumerator used similar bases of valuation for land, buildings, and equipment. Obviously no one person could perform the task. The necessary time for the work would negative the value of the findings. Many hospitals would have been founded or discontinued; buildings would have been remodeled or razed; much equipment would have been purchased or scrapped.

At the time data were being accumulated concerning capital investment, numerous facts were also made available as to hospital endowment and operating costs. These facts are referred to in various parts of this study and form an important addition to the basic capital investment data originally sought. Data of these types were more easily accessible, and in many respects more reliable than material on capital investment. The limitation of their use was dictated solely by the desire to limit the scope of this study.

APPENDIX B

"REGISTERED" HOSPITALS IN 1928, CLASSIFIED ACCORDING TO TYPE OF MEDICAL SERVICE, CONTROL, AND BED CAPACITY

TABLE B I

GENERAL HOSPITALS "REGISTERED" IN 1928, CLASSIFIED ACCORDING TO OWNERSHIP OR CONTROL AND SIZE

OWNERSHIP OR CONTROL	NUMBER OF HOSPITALS IN EACH GROUP								
	All Capacities	25 Beds and Under	26 to 50 Beds	51 to 100 Beds	101 to 200 Beds	201 to 300 Beds	301 to 500 Beds	501 to 1,000 Beds	Over 1,000 Beds
All groups	4,538	1,674	1,058	883	548	198	107	51	19
Government	772	215	195	147	88	38	39	31	19
Federal	232	63	62	42	19	13	15	15	3
State	51	2	5	15	14	8	1	3	3
County	221	57	76	42	26	4	11	2	3
City	235	85	45	39	24	12	11	11	8
City and county	33	8	7	9	5	1	1	.....	2
Non-government non-profit institutions	1,889	260	416	565	412	150	67	19	.....
Independent	1,014	179	241	310	184	54	33	13	.....
Church	841	73	165	245	224	94	34	6	.....
Fraternal	34	8	10	10	4	2	.....	.....	.....
Proprietary	1,877	1,199	447	171	48	10	1	1	.....
Individual and partnership	1,272	962	252	51	6	1	.....	.....	.....
Incorporated	448	159	158	90	34	5	1	1	.....
Industrial	157	78	37	30	8	4	.....	.....	.....

TABLE B II

NERVOUS AND MENTAL HOSPITALS "REGISTERED" IN 1928, CLASSIFIED ACCORDING TO OWNERSHIP OR CONTROL AND SIZE

OWNERSHIP OR CONTROL	NUMBER OF HOSPITALS IN EACH GROUP								
	All Capacities	25 Beds and Under	26 to 50 Beds	51 to 100 Beds	101 to 200 Beds	201 to 300 Beds	301 to 500 Beds	501 to 1,000 Beds	Over 1,000 Beds
All groups	553	92	83	45	53	34	34	50	162
Government	307	.....	4	12	28	25	29	49	160
Federal	20	.....	.....	1	.....	1	6	7	5
State	223	.....	.....	9	6	8	15	38	147
County	53	.....	2	1	22	14	6	3	5
City	9	.....	.....	1	.....	2	2	1	3
City and county	2	.....	2	.....	.....	.....	.....	.....	.....
Non-government non-profit institutions	69	6	17	12	19	7	5	1	2
Independent	49	6	14	10	12	2	3	.....	2
Church	20	.....	3	2	7	5	2	1	.....
Fraternal	.....	.....	.....	.....	.....	.....	.....	.....	.....
Proprietary	177	86	62	21	6	2	.....	.....	.....
Individual and partnership	131	76	42	11	1	1	.....	.....	.....
Incorporated	46	10	20	10	5	1	.....	.....	.....

TABLE B III

TUBERCULOSIS HOSPITALS "REGISTERED" IN 1928, CLASSIFIED ACCORDING TO OWNERSHIP OR CONTROL AND SIZE

OWNERSHIP OR CONTROL	NUMBER OF HOSPITALS IN EACH GROUP								
	All Capacities	25 Beds and Under	26 to 50 Beds	51 to 100 Beds	101 200 to Beds	201 to 300 Beds	301 to 500 Beds	501 to 1,000 Beds	Over 1,000 Beds
All groups	507	83	121	131	84	41	37	8	2
Government	282	23	59	75	49	32	34	8	2
Federal	27	2	1	7	2	4	8	2	1
State	60	.....	4	10	14	13	17	2	.....
County	154	17	48	49	24	11	2	3	.....
City	27	1	2	9	5	2	6	1	1
City and county	14	3	4	.....	4	2	1	.....	.....
Non-government non-profit institutions	103	15	25	29	22	9	3	.....	.....
Independent	73	13	17	21	15	6	1	.....	.....
Church	24	1	6	7	6	2	2	.....	.....
Fraternal	6	1	2	1	1	1	.....	.....	.....
Proprietary	122	45	37	27	13	.....	.....	.....	.....
Individual and partnership	82	40	27	12	3	.....	.....	.....	.....
Incorporated	40	5	10	15	10	.....	.....	.....	.....

TABLE B IV

INSTITUTIONAL HOSPITALS "REGISTERED" IN 1928, CLASSIFIED ACCORDING TO OWNERSHIP OR CONTROL AND SIZE

OWNERSHIP OR CONTROL	NUMBER OF HOSPITALS IN EACH GROUP								
	All Capacities	25 Beds and Under	26 to 50 Beds	51 to 100 Beds	101 to 200 Beds	201 to 300 Beds	301 to 500 Beds	501 to 1,000 Beds	Over 1,000 Beds
All groups	535	292	150	61	16	10	2	3	1
Government	325	154	98	46	14	7	2	3	1
Federal	11	3	1	1	1	1	1	2	1
State	247	121	77	35	8	6	.....	.....	.....
County	46	22	13	5	5	.....	.....	1	.....
City	16	5	6	5	.....	.....	.....	.....	.....
City and county	5	3	1	.....	.....	.....	1	.....	.....
Non-government non-profit institutions	210	138	52	15	2	3	.....	.....	.....
Independent	103	72	19	9	1	2	.....	.....	.....
Church	76	55	20	1	.....	.....	.....	.....	.....
Fraternal	31	11	13	5	1	1	.....	.....	.....
Proprietary	.....	.....	.....	.....	.....	.....	.....	.....	.....
Individual and partnership	.....	.....	.....	.....	.....	.....	.....	.....	.....
Incorporated	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE B V

SPECIAL HOSPITALS "REGISTERED" IN 1928, CLASSIFIED ACCORDING TO OWNERSHIP OR CONTROL AND SIZE

OWNERSHIP OR CONTROL	NUMBER OF HOSPITALS IN EACH GROUP								
	All Capacities	25 Beds and Under	26 to 50 Beds	51 to 100 Beds	101 to 200 Beds	201 to 300 Beds	301 to 500 Beds	501 to 1,000 Beds	Over 1,000 Beds
All groups	719	312	173	127	71	23	9	3	1
Government	127	38	30	27	18	6	5	2	1
Federal	4	1	2	.....	.....	.....	1	.....	.....
State	14	2	1	4	4	3	.....	.....	.....
County	15	5	3	4	3	.....	.....	.....	.....
City	85	24	23	18	10	3	4	2	1
City and county	9	6	1	1	1	.....	.....	.....	.....
Non-government non-profit institutions	333	96	89	84	42	17	4	1	...
Independent	222	58	54	59	34	15	1	1	...
Church	95	36	29	18	7	2	3	.....	.....
Fraternal	16	2	6	7	1	.....	.....	.....	.....
Proprietary	259	178	54	16	11	.....	.....	.....	.....
Individual and partnership	213	163	39	8	3	.....	.....	.....	.....
Incorporated	46	15	15	8	8	.....	.....	.....	.....

APPENDIX C

INVESTMENTS PER BED FOR SUBGROUPS OF HOSPITALS

The following figures show the ranges of bed capacities for the hospitals for which various average investments per bed were used in estimating the total for each subgroup. They are submitted in order that interested persons may compare the averages used here with investments per bed known to characterize hospitals or groups of hospitals with which they are familiar.

GENERAL HOSPITALS

$2,500: all governmental hospitals, 25 and under; individual and partnership, and industrial, 25 and under; federal, 26–50. *$3,000:* all governmental, 51–100 and over 1,000; state, county, city, city and county, 26–100; independent and church, 25 and under; fraternal, 50 and under; incorporated proprietary, 25 and under, and over 500; individual and partnership, and industrial, 26–50. *$3,500:* state, county, city, city and county, over 1,000. *$4,000:* all governmental, 101–1,000; independent, church, and incorporated proprietary, 26–50; individual and partnership, and industrial, over 50. *$5,000:* independent, church, and fraternal, 51–100; incorporated proprietary, 51–300. *$6,000:* independent and church, 101–200; fraternal, over 100; incorporated proprietary, 301–500. *$7,000:* independent and church, 201–300. *$8,000:* independent and church, 301–500. *$10,000:* independent and church, over 500.

NERVOUS AND MENTAL HOSPITALS

$2,000: federal, over 1,000; state, over 200; county and city, over 300. *$2,500:* federal, 200 and under; county, 50 and under, and 201–300; city, 201–300; city and county, all sizes; church, 50 and under. *$3,000:* federal, 201–1,000; state and city, 200 and under; county, 51–200; independent, individual and partnership, and incorporated proprietary, all sizes; church, over 50.

TUBERCULOSIS HOSPITALS

$2,500: all controlled, 25 and under; all governmental, 26–50; fraternal, and individual and partnership, 26–50. *$3,000:* all governmen-

tal, 51–100, and over 1,000; state, 101–200; county, city, and city and county, 101–1,000; independent, 26–50, and over 100; church, 26–50 and 101–300; fraternal, over 100; individual and partnership, over 50; incorporated proprietary, 26–50, and over 100. *$3,500:* federal, 101–1,000; state, over 200; independent, fraternal, and incorporated proprietary, 51–100; church, 51–100, and over 300.

SPECIAL HOSPITALS

$3,000: all controls, 50 and under; federal and city, over 300. *$4,000:* all controls, 51–200; all governmental, 201–300; independent over 500. *$6,000:* independent, 201–500; church, over 200.

INSTITUTIONAL HOSPITALS

$2,500 for all.

APPENDIX D

A FEW REMARKS ON COMMUNITY HOSPITAL SERVICE IN ——— AS AN ESSENTIAL PART OF CITY-PLANNING

Excerpts from a stenographic report of the address of a local physician at a social workers' luncheon, March 13, 1916:

"Our hospital service is at present inadequate to the need. A great many people have the erroneous idea that a hospital is merely a place to cut people up. (I don't know where they think the parts are reassembled.) This false idea may arise from the fact that our hospitals at present run too much to surgery. They need to emphasize the more important function of *medical* service. Our nurses do not have sufficient opportunity for learning to care for medical cases. We should have medical pavilions—medical floors, if pavilions are unattainable—in our hospitals.

"We now have three general hospitals: we have sufficient *general* hospital facilities here to meet the needs of this city for many, many years to come. [For the year 1929 two of these hospitals reported average occupancies of less than 50 per cent capacity. The third was utilized to 60 per cent of its capacity.] It would be a misfortune for another hospital of a *general* kind to be established in our community. What is needed is to build up those which we already have. Citizens interested in the Catholic hospital should support the Catholic institution; those interested in the Protestant hospitals should support the Methodist and the Baptist institutions. There is no need for the ——'s to start another hospital. It would be a great mistake for them to do it. In city-planning it is always necessary to find out whether a proposed institution fits into the scheme of organization that already exists. It should not be thrown out in a helter-skelter sort of way; it might duplicate. Instead of a new hospital, it may be that a new nurses' home or some other facilities are needed.

"Let us not build unnecessary new hospitals, but rather let us strengthen the hospitals that we already have. If there is any one who wants to give $200,000 to a general hospital, let him give it to one of the

hospitals already established here. You cannot multiply hospitals beyond the need of the community and get efficient service, any more than you can multiply telephone companies beyond the need of a community and get good telephone service. We do not need two cold-water faucets in one bathtub. Let us, therefore, rally to the support of the three general hospitals in our community and not attempt to compete with those that are now struggling to render efficient service and to make both ends meet.

"When it comes to the field of special hospitals, we have an opportunity for expansion which does not apply to the field of general hospitals. There is great need in this community for a children's hospital. It might be founded independently, or, better yet, it could be placed under the management of one of our established hospitals.

"We also need to improve hospital obstetric service and facilities: our present facilities are woefully inadequate. An obstetric division, either independent of, or connected with, one of the present hospitals would be a benefit not only to those who enter its walls but to obstetric care in the homes of the rich and of the poor. It is the duty of a hospital to do something more than to serve those who enter its doors. It needs to project itself upon the community; and if it does not elevate and does not improve the practice of medicine, the practice of surgery, the practice of obstetrics, the practice of all those branches of medicine which come within its province, it is not fulfilling its duty."

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